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AND

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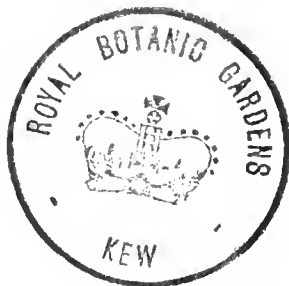
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TO OUR READERS.

"Change yet no change," however seemingly paradoxical, would scarcely be an inappropriate motto expressive of the actualities of the past and present of the *Journal of Horticulture*.

Full of years and honours, its venerable and venerated proprietor, the late Dr. Hogg, was called to his rest nearly midway (March 18th) of the term covered by the ninety-eighth half-yearly volume just completed.

On the occurrence of that melancholy and memorable event great was the responsibility which fell on his successor—involving as it did the maintenance of a periodical which has long proved a "welcome guest" in the homes of amateurs and gardeners over the length and breadth of the old home-land and other parts of the empire beyond the sea—a responsibility shared in degree by the writer of the last forty-three prefaces associated with the indexes to the volumes, and of the present lines.

The old chieftain—always thoughtful and looking to the future—left to others during his later years the production of the weekly issues of the organ that he did so much to establish; and it is now gratifying to be able to state that under his genial inspiration the *Journal of Horticulture* became so deeply rooted—like a healthy tree—as to pass unscathed through a time of trial incidental to the change—the termination of a life—that was felt to be approaching.

Thanks to the love and loyalty of its readers, and to the ability and zeal of its contributors, the favourite gardening weekly of so many has attained to the full all that the great lost leader could have anticipated; even more than this could in truth be said, but the fact recorded is enough.

There has been no change, at least prejudicial to the acceptability of "Our Journal." Its character and tone have remained the same. The spirit of the past has pervaded its pages, and the same spirit will continue—a spirit of endeavour to make the pages of the future interesting and instructive—refreshing after the toil of the day, helpful in the work of the morrow: a spirit of kindly feeling towards all who love gardens and who are striving to make them more lovable still; and, not least, a spirit of warm appreciation of the co-operative effort and valued help so freely rendered by a host of friends.

For what those who are responsible for the production of the *Journal of Horticulture* have been so far able to accomplish they are deeply grateful. Supported by the constancy of old readers and writers, and encouraged by new recruits in both sections, the hope is, as time goes on, to do still more on well-considered lines and in accordance with the sound principles of steady, progressive growth.

The desire is to afford such aid as may be needed by the inexperienced, and in cases of difficulty generally; and those readers who do not find in the weekly issues the precise information they require are cordially invited to promptly make known their wants (with conveniences for meeting them), and such advice as long experience can impart will be tendered freely—not as an irksome task, but an agreeable duty.

The wish is to fully reciprocate the favours of clients and supporters, and to do what is strictly just and right to all who are animated by the same spirit towards the *Journal of Horticulture*. By acting in accordance with that principle, the justice of which cannot be impugned, results may safely be left to the future.

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Journal of Horticulture.

THURSDAY, JANUARY 7, 1897.

FOLLOWING THE LEADER.

SOOTHING and satisfying. This is the opinion of one who would fain follow the leader—the "New Year's Greeting" on page 623—with the expression of a few thoughts and many reciprocal wishes to the veteran writer whose message of peace flowed so smoothly and so sympathetically from the mellow pen. The feeling will, I think, be unanimous that the "greeting," though but briefly touching upon the higher things of horticulture, and skilfully interweaving the still higher things of life, is both soothing and satisfying. Doubtless there are many who feel the need of a lubricant, without which the wheels of life, even though trundling through the sphere of a gardener's vocation, are apt to jar a little at times; and at this season, when we are about to start upon another round, it is especially helpful.

A little thoughtful reading of the "New Year's Greeting" will, too, reveal how suggestive it is of many things but lightly touched upon, with their deep, almost pathetic meaning, and I cannot but feel how happy is the expression which admits us as gardeners, far removed maybe in more ways than one, within that boundary which defines the *Journal of Horticulture* as "Our" Journal. If there were any further need to strengthen the feeling it is, I think, to be found in the contemporaneous address, "To our Readers;" and, again, this might still further be added to by noting the space which has been lately set apart and bears the heading of "The Young Gardeners' Domain." This, I believe, marks an era in horticultural literature, although some bright papers went straight from the bothy into the pages of an interesting little monthly several years ago.

That our boys will appreciate the privilege, with all the advantages it may and should confer upon them and their object in life, it is only reasonable to expect. If there is one lad who is diffident of entering that domain, because there is, or he thinks there is, brighter workmen with the pen than he, then I would say to him, Try; say what you think upon some subject of general interest, and say it in a natural, easy manner, without any pretensions to graphical

display, for such is not expected of you, nor is it desirable; fit your ideas into the homely garments of our mother tongue, and we—elders—shall admire them more than in the grandest dress you might strain to engarb them.

One must in these desultory thoughts shunt on to side tracks—feeders to the main line on which the *Journal of Horticulture* has run so ably and so long. It is now approaching a stage of some importance in its career, scarcely of secondary importance to us as gardeners than in this newborn year with its bright anticipations of the sixtieth celebration of Her Majesty's glorious reign to us as loyal subjects. When the tale of this year is told the *Journal of Horticulture* will have entered upon its jubilee—a golden wedding of literature with horticulture; and whether as readers or as writers, or both combined, we cannot but feel the hope which it is not premature to now express, that we may then bid "Hail to the Chief" whose banner bears the motto "For Gardening and for Gardeners."

To look back upon the vast amount of horticultural literature as exemplified in those goodly arrayed volumes of the *Journal of Horticulture* one might momentarily suppose that all that could be said for or about gardening has been said, but the slightest reflection shows the absurdity of such a thought. I once heard it remarked that "The gardener is a man who is never satisfied; first he wants more glass, then he wants more plants, then again he wants more glass and so *ad infinitum*." In this direction the limit might probably be found, although there are a few men I know who, if the whole garden were enroofed with glass, would want a little cool Orchid house or something of that ilk fixed on the wrong (or right) side of the garden wall. However, be that as it may, there are no limits so far as one can see to learning or to the teaching of the Journal, and the planting within its perennial borders must still go on for the advancement of gardening and gardeners present and to come.

"This year will be a great year in London, and you must go," says a friend. He spoke in the imperative mood, which must give place to the conditional; but, seriously, we have good grounds for hoping and believing that it will be a great year in London and beyond, stretching far away over that Empire on which the sun never sets. The relevancy of it to these thoughts consists of what has been advanced in these pages whereby horticulture may worthily join in celebrating Her Majesty's long reign. Far be it from me to suppose that any thoughts of mine would materially aid the matter any more than that my presence in London as a loyal unit would affect the vast sum who will delight to honour our revered Sovereign.

I had thought there were good reasons why a Gardeners' Club should be considered upon its merits, but "good reasons must of force give place to better." Moreover, those thoughts were, I fear, rather prompted by selfish considerations than regarded in that strong light with which a broad subject should be viewed. Anyway, some sound practical logic has been advanced *per contra* which had not entered into my somewhat hasty and hazy calculation. Whilst endeavouring to avoid entering upon debateable ground, or, indeed, fling any challenge into it, permission is asked to show that this passing dream is not entirely shattered by the shafts of better marksmen. Undoubtedly Mr. Wood's great scheme is one born of no hasty conclusions. It is, indeed, "too great for haste, too high for rivalry," therefore too far removed, not from its object, but from humbler propositions to provoke invidious comparison.

Man, as we know, is not only a gregarious animal, but clings to that order of his species to which he belongs, hence a gardener in London town may feel a little of what I have felt on few and far between visits—viz., isolated in that great agglomeration of humanity. In this case it is not a question of board, lodging, and entertainment, nor need that be ignored; but it is a question of the enjoyment of those privileges which communion of fellowship entails; and a gardener's club might well afford this and more also under the protective agency of sound rules of membership, of which parallel instances are afforded in other phases of life. I feel that there is a great deal more which might be advanced in its favour; I know there is probably as much which could be said against

it; but still venture to think that the latter cannot entirely neutralise an idea which, however crude, is capable of being polished into something more pleasing, something more tangible.

"D., Deal's," kindly greeting and the address "To Our Readers" are the sparks which have fired this train of thoughts (more smoke than fire perhaps), yet ere extinguished by the editorial foot one would fain fan the dead past in order to gain a little light for the future. The weather record of 1896 is to some extent remarkable, but not sufficiently so, I think, to render the year conspicuous in history, for its character, whilst not being very good, can hardly be termed very bad. To sum up, it has been what may be called trying—trying to gardeners, finding out their weak points, and surely trying to those who, as weather prophets, venture, or rather attempt, to predict it; and how often are they tried and found wanting. Some remarkable instances could be given to illustrate the utter futility of endeavouring to bring this apparently ungovernable factor within the limits of human prescience—that is to any appreciable extent. What better data could be afforded than the waning, weeping days of the dear defunct 1896? True, we are not yet out of the wood, and may be as near to Arctic severity as Nansen was to the Pole, but to-day the bairns have brought in blooms of the Coltsfoot, which were revealed to them by the delicate Heliotrope perfume, and the precocious Primrose has furnished our local paper with the proverbial letter on the mildness of the season. This, too, after much shaking of old heads over the abnormal crop of berries, and dire predictions measured by the extent of the crop.

There are so many texts furnished directly or indirectly by the New Year's number that one might go on and on, only there would not be room in the present one. How easy it is to follow a good leader; long may he be spared to introduce other New Years as ably as he introduced this year of glorious hope, hopefully pointing the way, gently vibrating the chords and pen of—AULD LANG SYNE.



MR. C. HARMAN PAYNE.

WE have pleasure in giving the portrait of this diligent Chrysanthemumist (fig. 2) as caught in his travelling cap by the kodac at Charing Cross just when he had taken an insurance ticket for the Continent. He has been the editor of all the N.C.S. catalogues since 1886, and was, we believe, appointed Foreign Secretary of the Society, on the proposition of Mr. Holmes, in 1888. As is well known by most of his personal friends he is a member of most if not all the French Chrysanthemum societies, also of the French Horticultural Society of London, and speaks French like a native. Besides contributing to the *Journal of Horticulture* and other English gardening as well as American papers, the ready pen of "P." has also assisted American, Belgian and French authors in compiling books on the Chrysanthemum, and it is said he will never be happy till he can pass an examination in Japanese.

If we remember rightly Mr. C. H. P. was awarded silver-gilt medals at the Lyons and Grenoble Chrysanthemum shows for a collection of coloured engravings pertaining to the golden flower, and he has been the recipient of many other honours which we cannot remember; but a few occur. M. Anatole Cordonnier dedicated his book "Le Chrysanthème à la Grande Fleur," to "C. Harman Payne." And in June last his portrait was published in the "Nord Horticole," with several pages of biographical notice from a French point of view, as an accomplished amateur. Mr. Payne edited the Jubilee edition of the N.C.S. official catalogue, and was awarded a Jubilee silver medal for his services. That was good, but something better followed, for he was recently appointed *Chevalier de l'Ordre de la Mérité Agricole* by the French Government for his literary services, as witness the distinguished decoration (fig. 1).

Then in December, just gone, our friend was awarded a gold Jubilee medal by the General Committee of the N.C.S., and an illuminated

address expressing "the esteem of the members and the high value placed upon his services as Hon. Foreign Corresponding Secretary, together with the great respect and appreciation of the members of the N.C.S.

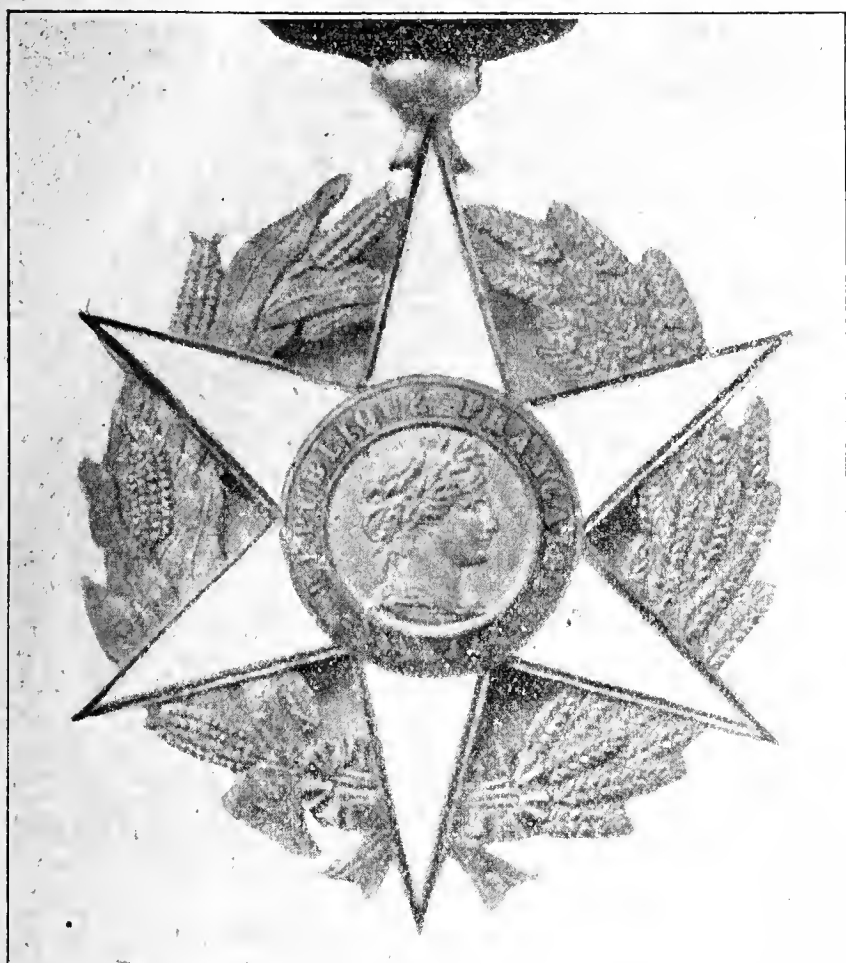


FIG. 1.—MR. C. H. PAYNE'S L'ORDRE DE LA MERITE AGRICOLE.

for the many valuable and arduous duties performed by him in the interests of the Society during the past years." He has evidently gone through a great deal, and we can imagine the writer of the well-deserved and eulogistic tribute shedding a few tears of gratitude over it at Anderton's.

Mr. Payne has during his office of Foreign Secretary been twice on the Continent in the interests of the N.C.S., and we are told by an outsider that he had the honour of doing this at his own expense. It is a Payneful list altogether, but the victim is wiry, and our hope is that he will survive the inflictions for many years, for he combines industry with ability, and is one of the most active and useful men in the Chrysanthemum world.

A TOUR ABROAD BY A HAPPY TRIO.

THE Editor of the *Journal of Horticulture*, knowing the deep interest that is taken by many of its readers in all that concerns the Chrysanthemum, has invited me to send a few notes relating to the recent wanderings of the deputation sent by the National Chrysanthemum Society to the continental Chrysanthemum shows.

The fame of the N.C.S. is of course largely due to the magnificent exhibitions that the Society has annually held, to the reports of the Society's proceedings as published in the horticultural press, to the publication of its official catalogue, which has done very much to popularise the Society both in America and on the Continent, but very little up to the present regarding personal contact between its members and the growers of the popular flower abroad. In 1889, about twelve months after my appointment as Foreign Secretary, the centenary of the introduction of the Chrysanthemum into Europe was celebrated by several societies in France and Belgium, and it will be remembered that some of the members of the N.C.S. were invited to act as members of the Jury at the Ghent Chrysanthemum Show held that year, and that they went as an official deputation.

Seven years have passed since then, and speaking purely from a Chrysanthemum standpoint, there has until the past season been no means of further extending our acquaintance with the foreign growers, except by correspondence or of making fresh friends. And what perhaps is of importance, we have been unable to form any just idea of the progress in cultivation that has recently been made over there, all our information on that score being second-hand. It was, therefore, with some degree of satisfaction that I received a few months ago a formal invitation to be present at the November Show of the Royal Agricultural and Botanical Society of Ghent, and to know that several of my friends and colleagues of the N.C.S. were to be similarly honoured. It was a still further gratification to find that the Paris Chrysanthemum show would also be open to us on the same terms a few days later; and

my previous experience being limited to Belgium, it was a fortunate coincidence that such of us as went would be able to gain a personal experience of how they grow and show Chrysanthemums in the two countries.

Although seven or eight of our fellow members were invited, the actual number able to go when the time arrived was only three—Mr. H. J. Jones of Lewisham, Mr. Thomas Bevan (the Chairman of the Floral Committee), and myself. Besides visiting the two important shows of Ghent and Paris we decided to take in any others that could conveniently be done; but we found that in our short stay we had undertaken almost enough to more than fill up the time.

Our excellent friend Mr. Bevan, ambitious that the N.C.S. should shine abroad by some of the productions of its members, collected good blooms to stage at the Ghent show in the name of the National Chrysanthemum Society. It was entirely his own idea, and so well carried out that he deserves the best thanks of the Society. Messrs. Cannell and Jones had also contributions, and our luggage assumed alarming proportions. I need not recount our trouble and anxiety in getting our precious consignment to Dover, nor of the difficulty in transferring the boxes to the Ostend boat; but at length we got them on board. The flowers were carried down into the cabin, and, of course, placed close against the stove. Not being stove plants they had to be "re-arranged."

At this season of the year travellers from England to Belgium are rather few by the night service, and we had the deck entirely to ourselves. The night was black and overcast, the wind was keen, and after promenading the deck for a time, and the spray having an unpleasant way of dashing over the bows for a long distance, we retired to a snug little corner and began to relate experiences.

Mr. Jones had just returned from Belfast and Sheffield, and I have always held that travelling is good for many reasons; it enlarges the mind, it increases knowledge, and improves the conversational powers. It is really wonderful what a charm there is in the stories of a traveller, and our friend Jones certainly did his best to while away the monotony of crossing the Channel on that bleak dark night by recounting all the curious little anecdotes and stories he had gathered together up to that time during the Chrysanthemum season. At any rate, he had a sympathetic and appreciative audience, if only a small one, and we all felt somewhat disappointed when the lights of Ostend appeared in sight.—C. HARMAN PAYNE.

(To be continued.)

CONFUSION IN NAMING CHRYSANTHEMUMS—G. J. WARREN v. YELLOW MADAME CARNOT.

UNDER the above heading "Interested" (page 605) writes *re* G. J. Warren, and I am not surprised, for on November 18th, 1896, I submitted G. J. Warren, yellow sport from Madame Carnot, at the N.C.S. Committee, the entire plant. On November 24th the same was exhibited at the R.H.S. On November 25th Mr. Jones ordered plants of this, Mr.

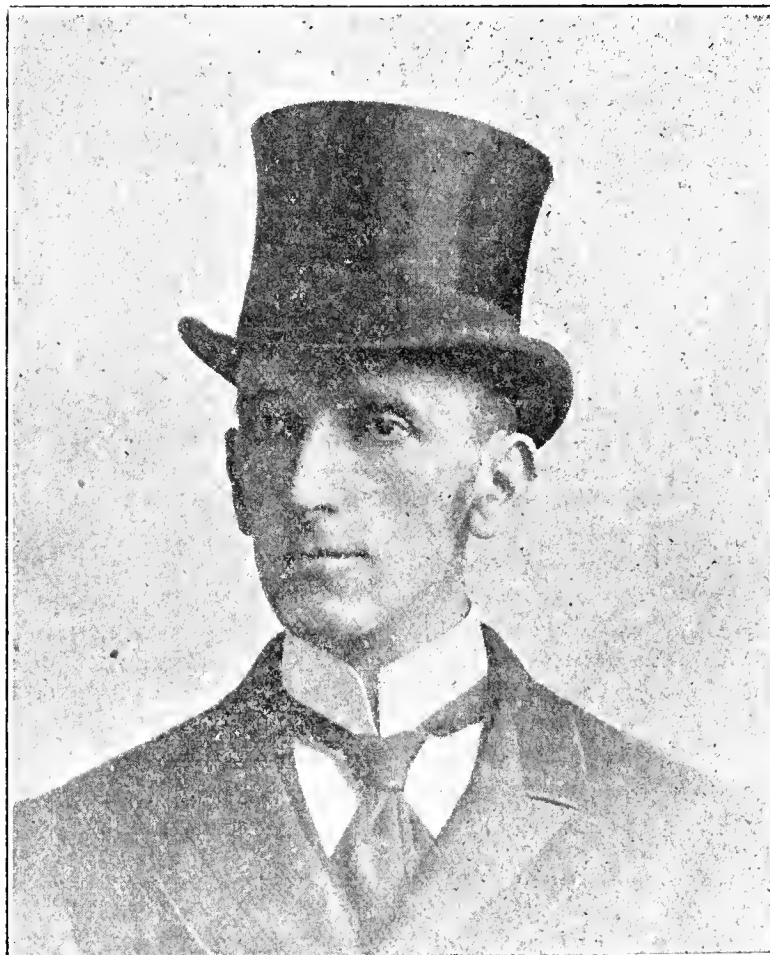


FIG. 2.—MR. C. HARMAN PAYNE.

Lees having also ordered plants. On December 1st Mr. Jones submitted blooms to the N.C.S. Committee, under the name of Mrs. F. A. Bevan. I was also asked if I would rename my G. J. Warren Mrs. F. A. Bevan.

What! rename it after I had bound myself by agreement, and distributed circulars, and advertised it as G. J. Warren. What next?

Now, what does "Interested" see? Wells' specialist, with G. J. Warren, yellow sport from Madame Carnot. Correct. "Gardeners' Magazine," last issue, has Mrs. F. A. Bevan, yellow Madame Carnot. Why did the N.C.S. Committee recognise this? or why did it ignore G. J. Warren? Mr. Davis has Mrs. F. A. Bevan, flesh pink, catalogued; while Mr. Jones has yellow Carnot without a name. Is it not worth a name? Does he ignore the name he gave it? I do not wonder at "Interested" being confused.—W. WELLS.

THE yellow sport from Madame Carnot that was staged at the N.C.S. meeting under the name of Mrs. F. A. Bevan was exhibited by myself. I at first thought that my sport was a darker yellow than the one exhibited by Mr. W. Wells under the name of G. J. Warren, and intended to give it a distinct name, but later, on carefully considering the difference in the age of the flowers exhibited, I thought it better to simply call it Yellow Madame Carnot until it has been grown side by side with G. J. Warren, when if it proves the same shade of colour it can have the same name; if it is a different shade it can retain the name of Yellow Madame Carnot, so there is really only one Mrs. F. A. Bevan offered in any catalogue.—H. J. JONES.

THIS charming Japanese sported last year from Madame Carnot in the gardens at Balcombe Place, Sussex, where it cannot be said to have received the highest culture. Being a sport, naturally the growth and formation of blooms are identical with its parent. The colour is canary yellow on the surface, with lemon yellow reverse. Mr. Wells, I hear, is the fortunate possessor of this novelty.—E.

THE N.C.S. JUDGES.

"FAIR PLAY," whose very uncomplimentary inuendoes (page 606) do not convey a very fair mind, seems in his strictures on the N.C.S. judging by members of the Committee to overlook the fact that this body, I admit too large and unwieldy, comprises thirty-six members, in addition to six others as officers, and of necessity includes many of the best Chrysanthemum growers, exhibitors, and judges in the kingdom. If all these are to be excluded from the post of judge at the N.C.S. shows, then will many of the best men be excluded from acting as such. By parity of such reasoning as "Fair Play" indulges in, every member of the N.C.S. Committee should be excluded from judging at shows of affiliated societies also—that is, therefore, to reduce his complaint *ad absurdum*.

To desire that trade growers should not judge in classes in which any blooms they may have special interest in are shown is right, but it must not be forgotten, for instance, that in the shows of the National Rose, Dahlia, and Carnation Societies, not only do traders in these various flowers constantly judge the amateurs' classes, and *vice versa*, but also that judging by members of the respective Committees is constantly practised. The singling out of the N.C.S. by "Fair Play" rather evidences some little spite—at least, it looks so.

To judge the decisions of the judges, even severely, is the privilege of everyone, and it is a very proper privilege too; but when such criticism degenerates into what appears like spite and vindictiveness, then matters go too far. If the appointed judges are ignorant or incapable, say so; but attributing corrupt motives is argument very apt to recoil on the accuser.—A MEMBER OF THE N.C.S.

[We agree with our correspondent that when a critic is so far animated by personal spite as to attribute corrupt motives to individuals who act contrary to his desire that he will be the chief sufferer in reputation in the long run. We know of no reason why "Fair Play's" criticism should be other than genuine. We presume he objects on principle to the unpleasant duty being imposed on judges of granting awards to exhibits containing products in which they may be personally interested, and we also presume that if he were asked to judge by his fellow members of the N.C.S. that he would decline the honour. It is quite true that other floral societies do what is stated, but we do not think "Fair Play" is a member of them, and therefore only interested in the N.C.S.]

PROPAGATING CHRYSANTHEMUMS.

VARIOUS are the methods adopted by cultivators in rooting cuttings of Chrysanthemums. The propagating season is now in full swing, and it is interesting to note the various ways which enthusiastic growers employ in the treatment of the cuttings. Some pin their faith entirely on a close system of propagation, inserting the cuttings singly in small pots, which are stood under frames or hand-lights in a greenhouse or vinery. The same system also answers when several cuttings are inserted round the edges of pots. It is not absolutely essential that the frames or hand-lights be entirely airtight when closed down, but only so that the atmosphere is still and moist, which will prevent rapid evaporation from the foliage. The pots must stand on some moisture-holding base, by which a slight but constant humidity is maintained. This will be enough to retain the soil moisture without recourse to frequent watering or syringing. An important point to remember and practise in the management of cuttings on this principle is to wipe dry the inside of the glass every morning.

The signs which indicate rooting has commenced also denote that the admission of air must be increased gradually until the lights or covers of the frames or hand-lights can remain open or off altogether. Bottom heat is not necessary except when it is required to hasten the rooting.

Even then the heat must be mild and steady, or the cuttings may be weakened by forcing. When heat is applied to aid rooting success is best insured by keeping the tops cool.

The gradual exposure to plenty of air stiffens the foliage and modifies growth, but transfer the plants to shelves near the glass in a cool airy structure as soon as it is possible to do so without distressing them.

The system of propagation above alluded to is the safest and best for readily rooting cuttings of exhibition varieties, also for insuring against possible loss of choice new or scarce sorts.

Sturdy sucker cuttings are the best when obtainable. Of some varieties stem cuttings can only be employed because of the scarcity of the more desirable material which springs from below the soil level. The most inferior stem cuttings are those which are furnished with flower buds. Avoid such if better can be secured. I may be wrong, but in my opinion the heel of older growth attached to stem cuttings does not prove of much advantage in rooting; therefore I invariably trim the cuttings to the younger tissue just above, finding they root quicker. It is also well to avoid cuttings with woody stems, none the less so if they have roots attached. Cuttings having more succulent stems furnished with active rootlets at their base are sometimes to be met with. These, if not too long, ought not to be discarded. Sturdy examples soon take root, growing quite vigorously. Place them singly in 2½ or 3-inch pots by the usual method of potting rooted cuttings. It is probable they will not flag at all, and do not need the protection of frame or hand-lights. The pots, however, should occupy a moderately cool, moist position. As soon as established move the plants closer to the glass.

Another method of rooting cuttings is frequently practised. It is, apparently, entirely opposed to the close system of propagation. This consists of simply placing the pots of cuttings on a moist shelf or stage in a low and but slightly heated structure. If a stage covered with moist fine ashes, gravel, or spar is available the conditions suitable are at once secured. Drying the atmosphere by heat or draughts will prove disadvantageous. The cuttings root slowly but surely. Much depends on the weather and the intelligent management adopted. The soil must be thoroughly moist when the cuttings are inserted; afterwards a daily skiff with the syringe, more or less according to circumstances, provides the humidity favourable to rooting.

Flagging of the leaves is not necessarily fatal to cuttings, but it is best to avoid it if possible, especially during the early part of the time after insertion. This is the most trying period, during which the fresher the cuttings can be kept the better. The base shortly develops the callus or ring of tissue from which roots are ultimately emitted. This tissue once formed the cuttings are generally safe. Roots issue sooner or later according to the conditions of soil temperature and moisture. Maintain the atmosphere steady and humid too.

The compost for cuttings needs to be light and sandy. Equal parts of loam broken up finely, leaf soil passed through a quarter-inch sieve, and a liberal addition of sand. Mix thoroughly, employing it moist when filling the pots, which should be clean and dry: 3-inch or 3½-inch pots are the best for a number of cuttings to be inserted round the edge. For single cuttings 2½-inch pots are the most suitable. In preparing them for use place a little loose drainage in the bottom of each, and protect with damp moss or fibry material from the loam. Press, or rather shake the soil firmly down in the pots, surfacing with a layer of clean white sand, which may be dry. If so, a number of grains will follow the cutting stick, and thus form a sandy base for the cutting to rest upon. It will largely prevent damp and decay. It assists the formation of roots. The layer of sand, too, indicates by its damp or dry condition the proximate state of the soil below. When inserting cuttings it is important that the base of each should touch the bottom of the cavity, and not be hung half way therein. In forming, therefore, the holes for their reception, note the length each separate cutting requires to be buried, so as not to place it too shallow or too deeply in the soil.

Take special care in labelling correctly and distinctly each lot of cuttings as inserted. Always follow one simple method in marking those round the edges of pots. Place the written label facing the cuttings, following the same plan with all. When that is understood there will be no difficulty in knowing to which the label refers if there are several varieties in one pot. Employ small smooth labels of uniform size, lightly covered with white paint. Commence the writing of the name from the top, using a bold black lead pencil. Painted wood labels all ready for use may be procured cheaply. Those 3, 4, and 5 inches long may be bought at 6d., 8d., and 10d. per hundred respectively.—E. D.

NEW CHRYSANTHEMUMS—INCURVED VARIETIES.

CONTINUING from page 606 my selection I find numerous additions to this section, but whether they will rank as high as some in years past is a moot point. However, it is now too late to remedy that for this season; growers must perforce make the best of what material comes to hand. By these remarks it must not be inferred there is none deserving of cultivation; certainly none comes up to the high standard of excellence set by such as Lord Alcester or the various members of the Princess of Wales family. There are, however, several that will prove useful and interesting to cultivators when next November comes round, and which those who aim at the highest pinnacle in the exhibition world cannot afford to do without.

As far as I can gather, every new variety of this season has been obtained from the seedling source; not one is the result of a sport. This, in my opinion, is the cause of a want of decided excellence in the newer sorts of the last season's introductions. Prominent in the list should

stand the two varieties raised by Mr. Foster, Brockhampton Nurseries, Havant, and named after members of his family.

Miss Violet Foster.—This is of American origin, and is a promising variety. The blooms are full size, especially well built; the slightly pointed florets incurve perfectly. The colour—dull purple on the reverse, faintly edged with silver—is distinct.

Miss Dorothy Foster.—A decided acquisition. The formation of the blooms is almost perfect. The florets have a distinct resemblance to Jeanne d'Arc in formation, being chipped at the edge. The colour is rose tinted with silver.

William Sparks.—Introduced as an incurved Japanese. This was shown as an incurved variety during the past season, and if some elasticity is to be allowed in this section, exhibitors would do well to add this to their list. The reverse of the slightly pointed florets is deep lilac flushed with silver. The blooms are large and of good form.

Mrs. James Eadie.—One of Pitcher & Manda's seedlings, distributed by Mr. H. J. Jones. The blooms are large and of good form, some few florets are at times slightly hirsute. The colour, lilac pink, is pleasing.

General Maurie.—Raised in 1894 at Ryecroft Nursery, this resembles in some degree of petal formation Jeanne d'Arc, except, perhaps, in the new variety the florets are stouter. The colour is soft primrose, each floret is tipped yellow when opening. This is a promising addition.

Lyne, jun.—This is from the same source as General Maurie. In colour chestnut and yellow at the base, golden or dull yellow in the centre. The broad florets incurve regularly.

Bonnie Dundee.—A favourable opinion was arrived at of this last season. The formation is perfect, the colour most pleasing—yellow heavily suffused with bronze, with an additional shading also of mauve.

J. H. Runchman.—When properly cultivated this would be admissible in the incurved section. It is now classed as a Japanese incurved, but is much too small to take a high position in that class. The florets are slightly chipped at the point, incurving perfectly; orange yellow. In late blooms the bronze shading is pleasing.

George Haigh.—Though not exhibited many times this year, sufficient blooms were seen to justify the high opinion formed of it last year. The form is of course identical with that of its parent—Robert Petfield—from which it is a sport. It is a full, handsome bloom, rosy carmine, centre shaded gold.

Duchess of Fife.—This has of late been the subject of some comment in the horticultural press; it was certificated as a Japanese incurved. The prevailing opinion, however, seems to be that it should be relegated to the incurved section. Certainly it was as such that I staged it for consideration by the N.C.S. Floral Committee. In the Japanese section it will be useless, being too small for present day requirements on the exhibition table. As a back row bloom in the incurved section it should take a high position. The blooms are quite globular, with long, closely incurving florets, tapering at the point. Early formed buds give pure white blooms, later are flushed with pink. It is of easy growth, carries abundant foliage, and is a credit to the raiser—Mr. H. J. Jones.—E. MOLYNEUX.

(To be concluded.)

THE GLAD NEW YEAR.

FAR be it from us to say a word against our old friend just passed away, but still we all must admit there is room for improvement in 1897. But it is not alone improvement in the seasons we hope for, there must be improvement in ourselves. Good resolutions are excellent, but there is always a danger of making far too many; a few well carried out build up the character much more.

We may look upon this New Year in two ways. First it comes as a gift of time direct from "The Lord and Giver of Life." We have been spared to make a fresh start, to turn over a new leaf; our names are not on the list of those good men and true for whom time last year merged into eternity. We are left to carry on our work and theirs; we have their example as a stimulus to fresh effort.

Much as some of us may crave for rest, still when a long mortal illness comes some thoughts must be very saddening. No more shall we tread the old familiar garden paths, no more pluck the flowers our hands have planted, no more will the song of birds reach our dull ears; other hands will work where we worked, other hands will reap the fruit of our toil, and our place shall know us no more. Glorious as may be the immortal flowers, very dear to our hearts are the humbler denizens of the earth.

We have begun the year, let us not at the close (if we are spared) have to look back regretfully on one wasted minute. There is an old motto which will bear repeating, and one that we should do well to write on our hearts—"Lost, somewhere between sunrise and sunset, one golden hour, set with sixty diamond minutes. No reward is offered, for it is lost for ever."

Then time comes as a talent—a talent to be put out to usury—no one is expected to work beyond his powers. Can we faithfully say that we always work up to our powers? It is wonderful the blessedness that comes with faithful work. This work must not be selfish in its character; we ought all to be members of one vast "Mutual Aid Society." It is generally the busiest man who can

do the most for others; the idle man is so behind with his own work that he has neither time nor inclination to help a neighbour. There are always opportunities at our door if we will but seize them, and it is not (thank God) the great things that count the most.

The master craftsman by a look, word, or smile may encourage a young brother, and spur him on to greater effort. A quiet appreciative listener may ease the burden of an overworked harassed soul. It always does one good to hear of similar difficulties being overcome, and it is wonderful what ideas and suggestions arise when a knotty point is quietly discussed with a tried friend. If the old hands can thus be of some service to their younger brothers, these striplings, too, may find work to their hands. The cheerful surrender of a well-earned leisure to help with a planting or pruning job in a neighbouring garden is a helpful discipline which must have a good effect on the character. If the young 'un has had a little technical training he ought to have many items of useful information for an outsider. The loan of a book or newspaper, the gift of a cutting or a few seeds, are all channels by which he may enrich those around him, and raise himself out of the slough of self.

In the lot of all come dangers, but one of the greatest dangers of modern times is the desire to do away with difficulties. This looks like a paradox. Is a life of ease the best and highest kind of life? No; it is only by fighting difficulties that the character is formed. Kingsley used to sing of "the brave north-easter" that made Englishmen what they are, and he got at the true spirit of the thing. Which is the finer man—the soldier perfect in autumn manoeuvre, with the drill at his finger's end, or the man who has led his little force through a hostile Afghan pass, or within range of a Zulu assegai?

Why, it is the very fact of our uncertain treacherous climate that has called forth the best efforts of our horticulturists. There is no credit in gardening where Nature does all; our young men expect so much more than their fathers; they are like the daughter of the horse leach, they cry, Give, give. Mind, we believe thoroughly in one form of discontent—discontent with ourselves, a discontent that leads to diligent effort and greater endeavour. The higher the attainments, the greater the humility. The book of Nature is so large that even those who have studied the longest leave much of the lesser unlearned. Remember time is short; you have no guarantee of another year. "Work while it is called day, for the night cometh when no man can work."—THE MISSUS.

OUTDOOR CULTIVATION OF MUSHROOMS.

HAVING grown Mushrooms in the open air for several years past, a few notes on the subject may be of interest to those who have not tried this system of cultivation. I was tempted out of the beaten track of growing Mushrooms in houses by having a copy of "Mushrooms for the Million" placed in my hands, and no apology is needed for referring to this admirable work in these pages, as it should be in the possession of all who wish to excel in the cultivation of this esteemed esculent. We possess one of the best Mushroom houses in the country, but it is rarely used for the purpose it was originally intended owing to the better crops and superior quality of the Mushrooms grown in the open air. It is an advantage to make up a bed in the house in the autumn, when Mushrooms are required daily at midwinter for home consumption, as during severe weather the outdoor bed should not be disturbed more than is necessary.

WHEN THE BEDS SHOULD BE MADE.

September is the most suitable month for a beginner, but with a little practice as good results may be obtained from beds made up during the present month as at any other season. Early in the autumn of 1895 I made up several beds which were not so satisfactory as those prepared three months later. This was owing to the hot weather experienced throughout September. Two years ago at midwinter, when the thermometer registered nearly 30° of frost, some beds were made and spawned during the severe weather, and some of the best crops of Mushrooms we have ever grown were obtained. If Mushrooms are grown for market it is not advisable to make up beds after January, otherwise the produce comes in when prices are low, and should warm weather prevail the beds will soon become exhausted.

PREPARING THE MANURE.

This is the most particular part of the business, and is the stumbling block over which many fall. One of the chief mistakes that is made is in not having the manure sufficiently moist. Manure prepared for beds made up in the autumn should be very moist, whereas when used at midwinter it should be in a much drier

state. After the last beds are made up in January all the manure that comes to hand should be placed in a heap, and kept in the open air until required the following autumn, only the long litter being shaken out, which will keep in better condition if placed under cover, as it will be required for covering the beds after they are made. The manure after being in a heap for six months will become very dry, as it should be stacked so as to throw the water off. It will be little the worse for this, as after it has been turned over and shaken out, well moistened, and carefully turned three times a week, decomposition will be rapid; if the work have been properly done the material will be in a suitable condition for growing Mushrooms. If the manure that is obtained during the autumn is placed in a heap in the open air no water will be required, as there is then a danger of it becoming too wet from the excessive moisture at that season.

Leaves, if used in the proportion of one part to three parts of manure, are of great assistance, not only in the saving of manure, but in keeping up a steady heat in beds that are made at midwinter. Oak and Beech leaves are the best for that purpose, and should be well incorporated with the manure during its preparation.

MAKING THE BEDS.

The ridge system is preferred to any other, and there is no advantage in making them too large, as a much larger quantity of manure is required, without a corresponding increase in the crop of Mushrooms. I have experimented with various sized beds, but have now come back to the size I originally commenced with—namely, 2½ feet wide at the bottom, 2½ feet in height, and 6 inches wide at the top when finished off. Beds of this size will retain sufficient heat to grow a heavy crop of Mushrooms, and that is all that is required. Although residing in a northern county, I have no hesitation in recommending the above sized ridges in preference to larger ones. The beds should be made as firmly as possible by treading, and beating the sides with forks as the work progresses. Men soon become experts at the business, and when they take a pride in their work will with a little practice build the ridges as true in outline as the roof of a house.

COVERING AND SPAWNING THE BEDS.

This should not be delayed, but they should be at once covered with a few inches of the long litter that was previously shaken out of the manure. It is advisable to leave the top of the ridge clear, so as to allow the steam to readily escape. If the manure have been properly prepared and the beds well made they will be ready for spawning in ten days. This can be ascertained by placing a thermometer in the manure. In a few days after the bed is made up it will probably register 100°, more or less; after it has fallen to 80° it is safe to insert the spawn. If there is any doubt in the matter it is better to wait a day or two than to do so an hour too soon. I am convinced there is more harm done in being in too much haste in spawning the beds than in allowing them to become too cold. The spawn is then blamed, whereas the cultivator is at fault. The mycelium being very delicate is destroyed within a few hours after being inserted in the manure if the heat is at all excessive. I had a practical illustration of this a few years ago.

Having obtained some manure solely from entire horses it was kept separate, and placed at one end of a ridge, spawn being inserted in due course, at the same time the remainder of the bed was done. A thermometer was placed on the surface of the ridge, but not at the end where the entire horse manure was used, until suspicion was aroused. On the third day after spawning a thermometer placed on the surface at the end of bed registered 90°, the remainder of the bed being only 60°. The latter did remarkably well, but the former was a failure, clearly showing that the spawn was destroyed in its early stages. A cake of spawn should be divided into eight parts, and be inserted about 9 inches asunder, slightly covering it with manure, which should be made quite firm.

CASING THE BEDS.

Some growers delay the casing of the beds with soil for a few days until the spawn has commenced running. I cannot see any benefit in this, while it is an advantage at this season to retain the heat in the beds as long as possible. I therefore always case the beds with soil as soon as they are spawned, using good loam that has been stacked for a few months, chopping it fine, and if dry water is added. The beds are covered with about 2 inches of soil, placing it evenly and firmly over the surface. This requires a little practice; never having seen it applied to ridges we had a difficulty at the first, but soon found out how it was done, and now it gives us no trouble.

PROTECTING THE BEDS.

The ridges must be well covered with litter or straw. At the present time ours are covered up warmly with litter about a foot

in thickness; some are thatched, and as the thatch is machine-made it is easily rolled off and replaced when necessary. Others have waterproof coverings. The only objection I have to them is that the moisture condenses under them, which causes the litter to decay more rapidly than it otherwise would, and as straw is now an expensive item it is an advantage to roll off the coverings during fine weather.

Mushrooms appear in from six to twelve weeks after spawning, according to the temperature of the beds.—S., Yorks.

THOUGHTS ABOUT FRUIT GROWING.

So much has been written on the subject of fruit culture during recent years, and capable men have been hammering away on the importance of better methods and closer attention to detail in regard to the production and distribution of home-grown fruit, that we look round to see what results have been the outcome of this action. The question naturally arises, Who are the principal fruit growers of this country? Some may answer gardeners, and certainly they comprise a large proportion, but should be classed rather in a professional than in a commercial sense. Fruit growing is part and parcel of the gardener's occupation—often his pet hobby; he has a reputation to maintain in that respect, and it is therefore to his interest to make himself acquainted with the best varieties, the most efficient methods of cultivation, and so forth, in order that he may win honours for himself at the exhibition table or receive approbation from the dining-room—both objects being worthy of his best efforts. High quality is the end in view, and this no doubt is responsible for the fact that hardy fruit—Apples, for instance—grown in private gardens or nurseries, where they are made a speciality, are so much superior to the generality of fruit sold in the markets.

Take for instance the great fruit show at the Crystal Palace. Mark the excellence in size, form, and colour of the hundreds of dishes exhibited. Who will say that such fruit is not equal in quality to the best of any other country? Ask where they are grown, and you will find that almost without exception fruit nurseries and private gardens are responsible for the whole. Tarry awhile till the great show closes, and watch the anxious almost greedy crowd pressing round the tables to buy, and the greatest difficulty an exhibitor experiences who wants to take his fruit home is to keep them from buying. Most of the purchasers know little about fruit, yet sufficient to tell them that the show fruits are cheap at any price compared with the inferior specimens that are expected to help to pay the rent of a still greater class of fruit growers—English farmers.

This brings us to the point, Why do writers hammer away on the subject of fruit culture? why do practical men demonstrate? and why do corporate bodies use all the means at hand to teach better and sounder principles? Is it to instruct gardeners and those who exhibit at such shows as the one in question in work in which they are already competent? No, certainly not; but rather it is for the benefit of a class who rarely attend, and never exhibit, at shows in work which is of such great moment to the future of land cultivation. Why fruit culture should be considered of such minor importance to the average farmer it is difficult to say. He will tell you that it doesn't pay; he can't sell his Apples in the face of American produce, and it's no good bothering with them. But question him further to get at the root of the matter. You will probably find him conversant on the subject of stock breeding and rearing, dairying, and the management of root crops, but in the orchard he is quite at sea. The trees are there of course, but he does not know who planted them, varieties do not trouble him, he knows one or two by local names, and is surprised to hear that the trees being covered with moss and lichen growth is detrimental to their welfare. Need we wonder then that foreign trade prospers, and our own declines, when conservatism and lethargy are so apparent?

Whether Britain will ever again be classed as a fruit-growing country is an open question. Possibilities there are no doubt, but it is questionable whether the men are forthcoming from the present generation. To persuade the farmer to give up his dairying and his root growing, and go in for fruit culture, would be a foolish policy; but to class this industry as an important section of his occupation is another matter, for it is as an adjunct to other crops that fruit culture on proper lines would prove the most profitable to the farmer. "Never have all your eggs in one basket" is an old saying, which in every sense is applicable.

No body has done more to help forward the movement for better and more systematic methods of fruit culture than the Royal Horticultural Society. A visit to the Crystal Palace show proves the appreciation of its efforts, but only in one direction—viz., professional gardeners and nurserymen. Could not our Society,

and the sister one, the Royal Agricultural, join hands in this matter and do something more? In this respect their interests are mutual, and I see no reason why classes could not be introduced at the Palace show for Apples and other fruit open only to *bona fide* farmers. Surely there must be many in the great army of agriculturists who would take advantage of such an opportunity, and it would also be an inducement for others to visit our shows. It is from small beginnings the great things grow, and for this reason such a thought is worthy of consideration. While agri- and horticulture are looked on as being quite distinct we cannot expect great things in this direction, but when this barrier is broken down, and it becomes more fully recognised that their interests are mutual in many respects, we may look for the gardener and farmer to join hands in the common interest.—G. H. H.

(To be concluded.)

VELTHEIMIA VIRIDIFOLIA.

THIS is a greenhouse bulbous plant not commonly seen or cultivated. It forms when in flower a very effective decorative plant in the conservatory or greenhouse, the spikes of drooping red and yellow flowers lasting in good condition a considerable time at the present season of the year, which is its natural time of blooming in a warm conservatory. Cooler treatment will retard its blooming until February or March, so that with several plants it is possible to provide a successional display. The *Veltheimia* is not, however, a very popular plant, as the spikes of bloom or even the individual flowers are of little or no use for cutting. Hence a few plants are usually all that are cultivated or required in a large establishment.

Like many other of our uncommon bulbous plants the *Veltheimia* is a native of South Africa, from whence it was introduced to this country in 1768. The bulbs with good cultivation attain to the dimensions of large Onions. The leaves from such bulbs are correspondingly large, long, and leathery; but they will not endure rough treatment, which causes them to break transversely, spoiling to some extent the appearance of the whole plant.

The bulbs rest during summer, new growth commencing again in August. That is the best period to pot the bulbs or shake away the soil from those occupying pots in which they may have rested. Select pots according to the size of bulbs, draining them moderately. Prepare a compost of rich turfy loam two parts and well decayed manure one part, adding a little sand also. Place soil in the pots and then the bulbs, so that the points of each are just below the surface when sufficient soil has been introduced and pressed firmly therein. The soil being used in a moist state it is not necessary to water heavily at first, but as growth becomes free the supplies should be increased, never allowing the soil to become dry, especially when the roots fully occupy it. Weak liquid manure may be applied occasionally, and it will assist in improving the colour of the beautiful glossy foliage as well as strengthening the bloom spikes.

A temperature of 45° to 55° is ample for the continuance of healthy growth, plenty of light and an airy atmosphere also being essential. Crowding the plants among or under the shade of others tends to make the leaves brittle and the flower spikes develop weakly.

The best position for the plants after potting is undoubtedly a cold frame where they can have a position near the glass. As the plants increase in size take them to more roomy quarters in a greenhouse, allowing them there to remain during the rest of their period of growth, both before and after blooming. The plants should mature in full sunshine. When the leaves have died down the bulbs may rest in any dry corner in greenhouse, keeping the soil dry.—E. D. S.

BRIEF NOTES ON ALPINE FLOWERS.

(Continued from page 610.)

PROTECTING WINTER-FLOWERING CROCUSES.

"WHAT can I do to protect my winter Crocuses from wind and rain?" This is what is not infrequently asked, and it cannot, if fairly considered, be deemed a superfluous query. "Cover them," is a reply good enough in its way, but, like many other replies, not sufficiently definite. "With what shall I cover them?" would almost inevitably be the next question, and this, again, could not be thought unnecessary. Let us, then, talk over the matter from a practical point of view.

It is sufficient with many flowers in winter that they should have a sheet of glass above and a free current of air passing between the glass and the plant; but unless in very sheltered gardens this will not do for the Crocus. In the wild days of winter the flowers are soon blown down by the strong winds, which seem to do all the more mischief if they get below the sheet of glass—at least the flowers are more easily destroyed by the wind even if saved from the rain. What is to be done then? "A small bell-glass," say some. Unfortunately, these little glass domes are rather too expensive to be employed on a large scale. They are also not very difficult to break, and take up a good deal of space when put away for the time. Unless lifted up a little, too, they do not give enough of air if the sun shines, and the atmosphere inside is heated to an excessive degree. Small hand-lights are expensive, and a simple wooden frame with sliding sheets of glass is the best thing for the purpose. If not too large (and there is no need for this) waste pieces of

glass may be used, and the covers made at very little expense. Later in the season they may be used for other purposes. A drawing and particulars of two of these accompany this. It will be seen that air can be given on a side opposite the wind.

SHELTERS FOR EARLY BULBS.

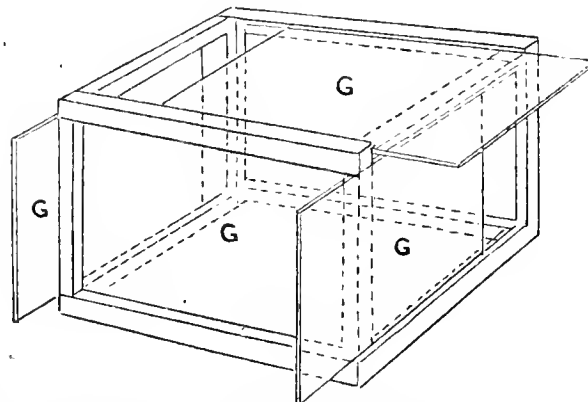


FIG. 3.—G, Glass sliding in grooves cut in the wood of which the frame is made. The wood is about 1 inch square. Size of shelter shown is 8 inches by 8 inches and 6½ inches high, but these dimensions can be altered. The glass on the top and two sides is shown partially drawn.

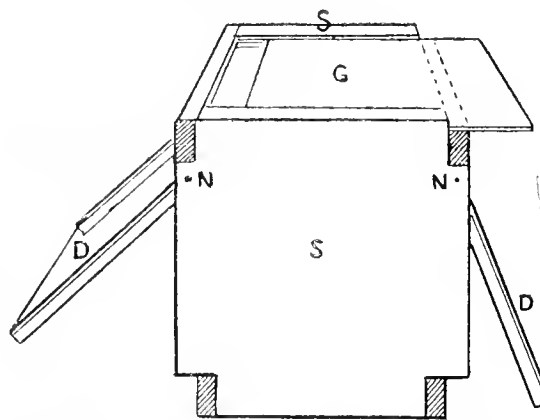


FIG. 4.—This is an older pattern, with glass top (G) sliding in a groove cut in top of wooden side, S. For further ventilation the sides D turn on wire nails N, and close against strips of woods connecting the two sides S at bottom. The size of this shelter is about 8 inches long by 8 inches broad, and the same in height. The wood is about ¾-inch thick. The opening sides are shown partly open.

AN EARLY SAXIFRAGE.

One of the earliest of all the Saxifrages is full of flower buds, and promises to be attractive early in January. If the impression regarding aliases which prevails with respect to men and women is to be taken as holding good about flowers, what an evil character this plant would bear! But the truth is that it is in no way responsible for others' misdeeds, and it is through no fault of this Saxifrage that it has had no fewer than four names, and that it obtained honours from the R.H.S. under an assumed one. Its real name is admitted to be *S. apiculata*, but its synonyms are *Frederici-Augusti*, *luteo-purpurea*, and *lateo-viridis*. It can stand a good deal of hard weather—frost, snow, or rain—and the only advantage it receives from being covered with a sheet of glass is that the flowers are of a brighter primrose yellow than if left uncovered. Some say, "Divide it every year to get it to flower freely." Do not do anything of the kind unless it persistently blooms unsatisfactorily. In many gardens it flowers perfectly well without such drastic measures, and is surely much more beautiful when it grows into a big mound of grey green with little spikelets rising above and showing their little yellow flowers.

EUPHORBIA CYPARISSIAS.

This is sometimes recommended as a plant for rockeries, and one is led to wonder if the one who recommends it has had it long or has plants to sell. It has pretty foliage, and its flower bracts are of a green which has sufficient yellow in it to make it bright. It is easily grown, and will cover a rockery in a very short time. All this is true, but all the same one feels sorry for the unfortunate beginner who is deluded into putting this *Euphorbia* among his choice rock plants. We all do very foolish things when in our "salad days" and green in judgment, and the harvest is generally reaped afterwards. We introduce the wild Oats and grumble later. The writer knows a rock garden into which this Milkwort was introduced through its forming one of a "cheap" collection of rock plants—"vendor's selection." The Cypress Spurge is somewhere described as "an elegant plant of perfect hardiness, and succeeding in any soil or situation."

We shall not pick holes in the description, but all the same, gentle reader, we beg of you, do not allow yourself to be induced to buy it. The unfortunate amateur who owns the garden mentioned above bought *E. Cyparissias* some ten or eleven years ago, and for some eight or nine he has been endeavouring to get rid of it. He is still at the work, and begins to think it will occupy some of his leisure for the remainder of his natural term of life. It runs under the surface, making use of stones as fortresses, whence it may sally forth among the gems beloved of the man who has gone crazy over alpine flowers. A little bit will grow, and it must be set down as one of the flowers to be fought shy of.

EDELWEISS.

The romantic interest of this flower seems to cause it to be more eagerly sought after than its intrinsic beauty would merit, compared with many other gems of the mountains. Doubtless much of its value to the Swiss mountaineer is that of its "everlasting" nature, and that on account of this it may be kept as a remembrance of the marriage ceremony. I had better cut short this introduction to what is really the more prosaic question of the winter treatment of the Edelweiss, or I shall be in danger of incurring a remonstrance.

Well, then, the Edelweiss is hardy enough, but should be kept high up on the rockery, in light soil, and should have glass or a slate a few inches overhead to keep its woolly leaves dry. So I told a friend who had had some plants sent him, and who asked me what he could do with them. I fear, however, the steed was stolen, as it appeared that the plants were already on the rockery. The stable door was locked too late, as they were not in a very good place, and it was too far in the season to remove. Then it was going to be too much trouble to put the glass above, and I was told "they would just have to take their chance." What could one do but think that after all the inquirer would never become a grower of Alpines? He might grow *Euphorbia Cyparissias*, but the *Gnaphalium* is beyond his patience and so beyond his skill. —ALPINUS.

(To be continued.)

POINSETTIAS.

THE remarks by your able correspondent, "J. S. G." (page 586), prove that he is an enthusiast and a practical grower of the Poinsettia, and his article appears at the opportune moment when they are at the height of their season and popularity. That perfection in their growth and treatment is arrived at under varying conditions is admitted by your correspondent, and some growers no doubt may be inclined to take exception even to the methods described and adopted by "J. S. G.," excellent though his results may be, and undoubtedly are.

My observations, extending over several years, justify the opinion that no hard and fast rule can be universally adopted, but the grower must adapt himself to the conditions with which he is brought into contact. One cultivator will produce good material under cool summer and autumn treatment, while another secure the same satisfactory results under warmer conditions, and very often the latter course is adopted from force of circumstances rather than from choice.

The past summer certainly cannot be regarded as a typical one, the drought and heat being much above the average, so that the Poinsettias grown entirely in the open air may have been favoured; but in my case results clearly show that a three-months course in the open air was agreeable to them, their growth being short jointed and well ripened, and the resultant bracts, though not equalling the greater diameter of your correspondent's plants, are nevertheless of average size. Having cool treatment since they were placed indoors at the end of September, they are in good condition for house furnishing. Needless to say, it is only the old plants and the earliest rooted cuttings that have been given this cool outdoor treatment.

It is presumed that "J. S. G." admits there are at least two distinct forms of Poinsettia beside the double and the white one in general use. I know there are some gardeners who do not acknowledge this fact. There is not the least doubt of this, as anyone growing the two kinds can readily distinguish them. They are distinct both in point of size and form of bract, in habit of growth, and time of flowering. One will develop its bracts early in November under cool treatment, the other can be more easily flowered for the Christmas festival. One has a uniformly shaped head, the other is not so compact, and the colours vary almost as much as shape in the two forms. What their distinctive titles may be I cannot determine, but probably some other reader may be able to decide the point. It is a subject that may engage the attention of the young gardeners who contribute so well in the column set apart expressly for them. Mr. Robinson of Heywood and Mr. Mann at Leighton are both very successful growers of the late variety, and at each place a number of good plants may be seen at their best for the Christmas season.

During the twelve years Mr. Iggulden was at Marston Poinsettias were an annual feature, arranged while at their best in the fernery. There is nothing that I have yet seen that can surpass an arrangement of Ferns and Poinsettias, and grown as they were in various sized pots and of differing ages it was an easy matter to form perfect banks of their glowing bracts. Mr. Robinson retains none of the old plants after they have supplied the number of cuttings required, and as these are given frame treatment from the time they are well rooted until placed in their winter quarters the plants are comparatively dwarf and well clothed with foliage to their pots. Mr. Mann is a strong advocate for high temperatures to develop a good autumn growth and flower head. I have seen plants quite 6 feet in height bearing enormous bracts in 7-inch pots from cuttings rooted in May. I cannot give exact dimensions, but I believe I have measured them 22 inches in breadth. From a decorative standpoint, however, I consider a plant half the height, even if the flower-head is an inch or two less, much more effective, because they can be more easily seen and they are better adapted for grouping. At the same time, Poinsettias with heads nearly 2 feet in diameter are sure to win favours, and bestow credit on those entrusted with their custody. For securing such results there must be strong cuttings to start with and good accommodation for rooting them quickly. —W. STRUGNELL.



WEATHER IN LONDON.—As a whole the weather during the past seven days has been of a more settled character, though it is not yet quite seasonable. On Saturday a dense fog hung over the whole of the metropolis all day, occasioning much discomfort to everyone, and causing the trains at the various termini to be very late. It cleared towards eight o'clock in the evening, and at ten the stars shone brightly. Sunday and Monday were fine, but Tuesday was miserably wet. Wednesday was bright and clear, with a sharp frost in the early hours of the morning.

— WEATHER IN THE NORTH.—The close of the old and the beginning of the new year have been attended by variable, and by no means seasonable weather. New Year's Day was dry and brightish, the following day drizzly and cold. Monday was also fair, though cold; and on Tuesday morning there was the only slight touch of frost for the week then ending.—B. D., *S. Perthshire*.

— ROYAL HORTICULTURAL SOCIETY.—The first meeting of the Royal Horticultural Society in 1897 will be held as usual in the Drill Hall, James Street, Victoria Street, Westminster, on January 12th, 1 to 4 P.M. On or before that date the Society's new book of arrangements, containing particulars of the shows, lectures, Committees, &c., for 1897, and the report of Council, and new list of Fellows will be issued.

— REMEDY FOR AMERICAN BLIGHT ON APPLES.—I always read with much interest "Work for the Week" in the *Journal*, and in reference to the practical remedies for the above (page 634) I have found the following by far the most effective in my garden on Cox's Orange Pippin and Cellini, the former being of twenty-two varieties most subject to it:—Take a quart or a gallon of water, more or less as may be required, and boil it. Pour on freshly ground flowers of sulphur—the quantity in proportion to the number of trees affected—then mix well. When going to use take a tenth of petroleum and add. Then apply with a painter's brush, taking care to put plenty into the crevices. A second application may be unnecessary.—W. J. MURPHY, *Clonmel*.

— MR. CYPHER.—Hearty will be the congratulations to Mr. Cypher upon the attainment of the "allotted span," and earnest the common hope of his fellow townsmen and others that he will long be spared to preside over the flourishing business which has made his own name and that of Cheltenham so familiar in the horticultural world. In celebration of his seventieth birthday Mr. Cypher gave a complimentary dinner to his workpeople on Friday evening in one of the Orchid houses at his nursery off the Queen's Road. Mr. Cypher was present, accompanied by his two sons, Mr. William Cypher and Mr. Frank Cypher, and his two nephews, Mr. John Cypher and Mr. William Cypher, and the heads of the various departments. Altogether the company numbered upwards of seventy. During an interval in the songs Mr. Cypher made a characteristic little speech.

— PRESENTATION TO MR. W. MACKAY.—On the occasion of the completion of twenty-five years' service with Messrs. R. Veitch & Sons, Exeter, his fellow employes took the opportunity to present to Mr. Mackay an address (beautifully written and illuminated by Mr. F. Tozer), expressing the great esteem in which he had always been and is now held by them. The address was accompanied by an exceedingly handsome solid silver cigar case and vesta box, richly engraved with his monogram and bearing a suitable inscription. These were presented, on behalf of his fellow workmen, by Mr. Webber in a neat and appropriate speech. At this juncture a parcel was handed to Mr. Mackay, which, on being opened, was found to contain a very handsome solid silver salver with a cheque for £25 as presents from Mr. Veitch to commemorate the occasion, and "in recognition of twenty-five years of faithful service to the firm." Mr. Veitch's gift was accompanied by a letter written in feeling terms, expressing his appreciation of the value of Mr. Mackay's services, and hoping that the cordial relationship which had existed for so long might continue for many years to come. The recipient of these good wishes feelingly replied, and expressed his warm appreciation not only of their kind gifts, but still more of the kind words and manifestations of goodwill which accompanied them.

— **FORCED RHUBARB.**—Mr. H. Clayton, head gardener at the Manchester Reformatory School, sends us a sample of Rhubarb such as he has been pulling for five weeks. It is excellent. The stalks are 15 inches long, stout, bright red, with small green leaves. We are not surprised to hear that it finds a ready sale, though American Apples affect the price of the Rhubarb. "One of the Boys" informs us in an extremely well written letter, that he and fifteen other young workers presented a dinner service as a mark of their esteem to Mr. Clayton on the occasion of his marriage, on the 28th ult. The institution is evidently doing good work.

— **THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.**—A meeting of the above Society was held in the Parish Schoolroom on December 29th, Mr. George Picker (Hesslewood) in the chair, when a paper was read by Mr. G. C. Coates, gardener to W. Wheatley, Esq., Hull, on the "Arrangement of Plants in General for Effect." This included the planting of herbaceous borders and flower gardens, the arrangement of plants in glass structures and grouping for exhibitions. Much might be said about this arrangement of plants in gardens, and every gardener should become thoroughly conversant with this interesting branch of horticulture, by which means their gardens would be rendered more attractive and a source of much pleasure to their employers.—F. L. T.

— **RHODODENDRON GRANDE.**—Of the many beautiful Himalayan Rhododendrons this certainly ranks among the foremost. If it were grown merely for the sake of its foliage it would be worth a place in a cool conservatory, as the leaves average from 10 to 12 inches in length by 5 inches in width. As a flowering plant, however, it takes a front place in a genus composed almost entirely of good flowering garden plants. The individual flowers are about 2½ inches long by 2 inches in diameter, white in colour, with a dark blotch at the bottom of the throat, and produced fourteen to sixteen in a truss. A plant 9 feet high and 9 feet in diameter, carrying upwards of forty trusses of expanded and partially expanded blossoms, may now be seen in flower in the temperate house at Kew.—W. D.

— **EMIGRANTS' INFORMATION.**—The January circulars of the Emigrants' Information Office and the annual handbooks show the present prospects of emigration. According to the report of the Labour Bureau at Sydney the number of unemployed persons is still considerable. The selection of land by small settlers is proceeding very satisfactorily throughout the Colony, especially in the Riverina district. A report from the rich valley of the Hunter states that there is a demand for skilled farm labourers and dairymen, but none for mechanics or miners. Another report from the valuable dairying district of Kiama, south of Sydney, states that there is no demand for labour; land there is selling at £24 an acre, and renting at 30s., so that farmers going there require some amount of capital. At Robertson (102 miles from Sydney) there is a fair demand for farm labourers, and at Hay (450 miles from Sydney) for boundary riders, drovers, and country carpenters and blacksmiths. The Commission appointed to inquire into the financial failure of the Mildura Irrigation Colony has reported that it was mainly due to the insufficiency of the irrigation works, and that the Government contributed to this result by its neglect. They recommend that a loan of £30,000 should be advanced by the Government on security of the land, and that the original concession to Messrs. Chaffey should be cancelled. There are excellent openings for farmers, dairy farmers, fruit growers, and wine growers, if they have a little capital and some experience of the country. In South Australia, owing to the want of rain, especially in the north, farmers have greatly suffered, and the demand for agricultural labour, for shearers, and for general hands throughout the Colony has been small. In Western Australia there has been a marked scarcity of farm labour in agricultural parts in the south-west of the Colony. The wages of farm hands have advanced during the past two years in some districts as much as 50 per cent., and for some time to come there is likely to be a good opening for this class of labour. Employment, however, is not permanent in all parts, and in the Kimberley Division and other parts in the north of the Colony there is no demand. In any case emigrants should be prepared to turn their hands to all kinds of farm and station work, to cut down timber, use a pick and shovel, and to rough it in the bush and country districts. Intending emigrants are warned against emigrating to Chile without first verifying at this Office the statements circulated by colonisation agents. Owing to misrepresentations unsuitable emigrants have been sent from this country to the Island of Chiloe, and distress and discontent have been the consequence.—(Emigrants' Information Office, 31, Broadway, Westminster.)

— **MY GARDEN DIARY FOR 1897.**—Under the above title Messrs. Sutton & Sons send us from Reading what we may appropriately term an attractive and useful gardeners' and amateurs' companion. A list of concise reminders is given for each month, with an almanack and space for memoranda, which will prove serviceable throughout the year.

— **DEVON AND EXETER GARDENERS' ASSOCIATION.**—The annual supper, which has now been held by the members of the Devon and Exeter Gardeners' Association for some years past, took place recently. The chair was taken by Mr. G. B. Lansdale, while the vice-chair was filled by Mr. W. Andrews. The Chairman having submitted the loyal toasts, which were accorded musical honours, gave the toast of the evening—viz., "The Devon and Exeter Gardeners' Association," coupling with it the names of Messrs. W. Mackay and C. H. Clarke. Other toasts were submitted, and a most enjoyable evening was spent.

— **CHRISTMAS, 1896.**—Very few persons probably take the trouble to keep accurate account of the nature of the weather which prevails on each Christmas Day. If they did so, rather than trusting solely to memory, which may be very treacherous, they would probably find variations as great as probably any day of the year would furnish. Not that it is assumed that Christmas Day, or simply the 25th of December, is or should be of more importance than any other day, but there is no day in the year which the artist and the poet have so much marked for their own, and around which they have thrown such a halo of romance—always of an intensely wintry aspect. But it is rare that the romantic ideal of snow, hoar frost, and all these wintry concomitants is realised. Far more often is Christmas of a very prosaic order, so far as weather is concerned, such for instance as marked the present year's festival, when a heavy rain overnight literally washed all romance out of Christmas Eve, and made the famous wassail bowl to overflow with water. Christmas Day was soft, pleasant, and very much like the weather of early April. How diverse from the ideal weather, and yet how very like that which commonly prevails. It is this singular diversity between the real and the sham Christmastide which is telling so much towards the destruction of all Christmas romance. We are after all a very practical people, and hate thaws, hence we are getting to regard Father Christmas as something of an old humbug. The most real aspect of Christmas is found in its family gatherings. That is a delightful feature, which will long endure after fictional Christmas weather has been forgotten.—A. D.

— **THE APPLE AS A PROPHYLACTIC.**—Many can testify from actual experience to the value of the following, which appeared originally in the "New York Merchants' Review." "Everybody ought to know that the very best thing he can do is to eat Apples just before going to bed. The Apple has remarkably efficacious medicinal properties. It is an excellent brain food, because it has more phosphoric acid in easily digestible shape than other fruits. It excites the action of the liver, promotes sound and healthy sleep, and thoroughly disinfects the mouth. It helps the kidney secretions and prevents calculous growths, while it relieves indigestion, and is one of the best preventives known for diseases of the throat. No harm can come to even a delicate system by the eating of ripe and juicy Apples before retiring for the night."

— **THE PEAR SLUG.**—Pear trees have been severely injured in some portions of Delaware by the larva of this insect, *Eriocampa cerasi*, during the past season. This slimy, dark green slug eats the soft tissues of the leaves, leaving the coarser veins, and the mutilated foliage dries up and falls in midsummer. The insect can easily be checked by sprinkling the trees with air-slaked lime, or hellebore can be applied dry or in water. Road-dust has often been used with success, the efficiency of its action depending on each slug receiving a coating of the dust, which stops up its breathing apparatus and causes its death. The effect of the defoliation of a Pear tree in midsummer extends further than the immediate loss of its leaves. The dormant buds, which normally produce the foliage and flowers of the coming season, may push forth and cover the tree with a new foliage in August or September. Then a new set of buds are developed on this late growth to provide leaves for next year, and these buds are necessarily weak and undeveloped, and result in a feeble growth. This extra effort on the part of a tree, after its growing period is practically over, is a devitalising process, and if continued three or four years may result in its death. I know of one valuable bearing orchard that was quite destroyed by this pest in three years. Several young orchards have come under my notice which have gone, or are rapidly going the same way.—G. HAROLD POWELL (in "Garden and Forest.")

— PLANTS FOR DRY CHALK BANK.—Can any reader assist me in deciding what plants would thrive best on a now barren (grass) bank, situated on the Surrey hills, southern aspect? Soil about 4 inches deep, light loam, with subsoil of chalk.—G. K.

— DAHLIA MISS WEBSTER.—Referring to this new white Dahlia, which during the autumn of 1896 received so many certificates and a R.H.S. award of merit, Messrs. Dobbie & Co. desire to say that the raiser was Mr. William A. Kent, Newchurch, Sandown, Isle of Wight, from whom they obtained the stock.

— SWEET PEA "CUPID."—I have failed entirely in flowering the dwarf Sweet Pea "Cupid" either in the open border or in pots. In summer flower buds were produced, but dropped as soon as they expanded. At this time of year nothing but tendrils come where the blooms should be, though the plants are fairly vigorous. Plants covered with bloom have been exhibited. What is the secret of growing them? —ROSS-SHIRE.

— DEATH OF MR. J. W. C. HOWE.—We regret to have to record the death of Mr. J. W. C. Howe, which occurred on December 27th, the result of an accident at Brading Station, Isle of Wight. He was the son of the late Mr. Charles Howe, many years gardener at Benham Park, and nephew of the present gardener. The deceased (aged nineteen) was a promising young man, apprenticed to a firm of engineers at Newbury, and was spending his Christmas holidays with his widowed mother. Among the many floral tokens at the funeral were one from the Dowager Lady Sutton and one from Mrs. Myers of Benham.

— WAKEFIELD PAXTON SOCIETY.—The proceedings at the weekly gathering of the members of the Paxton Society on the last Saturday in 1896 were on totally different lines to those on other Saturday evenings. Instead of an essay or lecture on some horticultural or kindred topic there were a smoking concert and a substantial supper. Mr. W. Tunnicliffe, of The Poplars, Thornes, presided, and the vice-chair was filled by Mr. B. Whiteley, of Caxton House.

— THE WONDERS AND ROMANCE OF INSECT LIFE.—At the London Institution recently Mr. Fred. Enock, F.L.S., delivered a most interesting lecture on "The Wonders and Romance of Insect Life" as portrayed in the life histories of some of the insects common in every London back garden. The fifty illustrations shown upon the screen were the handiwork of Mr. Enock, each one a study from Nature, showing the metamorphoses of the various insects. Many of the marvellous insect egg parasites have been discovered by the lecturer, who is engaged upon a monograph of this most interesting but neglected family.—("Knowledge.")

— SHIRLEY GARDENERS' ASSOCIATION.—At a recent monthly meeting of this Society, held at the Parish Room, Shirley, Southampton, the President in the chair, the attendance was smaller than usual. Mr. E. Molyneux, Swanmore Park Gardens, gave a most interesting lecture entitled "Fruit Culture under Glass," which was chiefly intended to be applicable to those who have to do with houses where it is attempted to grow fruit with flowers. Mr. Molyneux, therefore, took what he termed the "salient points" of the culture of Grapes, Peaches, Nectarines, and Melons. There was a good discussion at the close of the lecture, and a vote of thanks to Mr. E. Molyneux closed the proceedings.

— ADVICE ON FRUIT TREES—COUNTY COUNCIL TEACHING.—A short note was recently published on pruning fruit trees, and County Council teaching by so called Technical Instructors. Unfortunately the cases referred to are not alone. In one instance advice was given to plant in a new orchard one-fifth of Tom Putt Apples as standards, and one-tenth of Annie Elizabeth. The soil was most unsuitable for Tom Putt, and the second variety, as most fruit growers know, is a very shy bearer. The advice given gratis, and dear at that, was not followed, as the farmer consulted another person who had some practical experience in growing fruit for market, which is far better than theory, and varieties suitable to the soil and situation were substituted. In the same county pamphlets have been distributed amongst farmers and others intending to plant fruit trees, in which they have been advised not to prune the trees when planted, but to defer it until the following season. The consequence is that instead of a well-formed head of clean healthy wood there are thin stunted branches covered with premature blossom buds.—SOUTH WALES. [We know nothing about the soil referred to as unsuitable for the Apple Tom Putt, but Annie Elizabeth has proved a notoriously slow bearer, and is therefore not planted by experienced fruit growers for market purposes.]

— LAST YEAR'S RAINFALL AT BENHAM PARK, NEWBURY, was 25.17 inches. September was by far the wettest month with 5.43 inches, but upwards of 3½ inches fell in March and June and nearly 4 inches in December. Rain fell on 168 days. In 1895 the total was 23.55 inches on 120 days.—H.

— SUSSEX RAINFALL.—The total rainfall for December at Abbot's Leigh, Haywards Heath, was 4.70 inches, being 1.96 inch above the average. The heaviest fall was 1.06 inch on the 13th. Rain fell on nineteen days. Total for the year, 26.48 inches, which is 4.17 below the average. The maximum temperature was 49° on the 31st; the minimum, 25° on the 17th. Mean maximum, 43.07°; mean minimum, 33.18°. Mean temperature, 38.12—0.48° above the average.—R. I.

— DECEMBER WEATHER AT DRIFFIELD.—Mean temperature at 9 A.M. (corrected), 37.69°. Wet bulb, 36.87°. Mean maximum 41.73°; mean minimum, 32.98°. Highest, 50.0° on the 30th; lowest, 20.0° on the 1st. Mean of maxima and minima, 37.35°. Mean radiation temperature on the grass, 26.63°; lowest, 12.2° on the 1st. Rainfall, 3.97 inches. Number of rainy days, twenty-three. Greatest amount on one day, 0.66 on the 4th.—W. E. LOVEL, *Observer, York Road, Driffield.*

— DECEMBER WEATHER AT HODSOCK PRIORY, WORKSOP.—Mean temperature, 37.9°. Maximum in the screen, 53.7°; minimum in the screen, 18.4°; minimum on the grass, 10.7°, on the 18th. Number of frosts in the shade, sixteen; on the grass, twenty-six. Sunshine, twenty-three hours, or 10 per cent. of possible duration. Rainfall, 2.55 inches. Rain fell on twenty-two days. Maximum fall, 0.47 on the 4th. A dull month with no sharp frosts and with a slight excess of rain.—J. MALLENDER.

— LAST YEAR'S RAINFALL.—In this district (South Yorkshire) the drought during the past season was not so disastrous as in some parts of the country. The rainfall for the past year has been 23.90 inches, which fell on 167 days. This is quite up to the average of the past ten years, which was 23.71 inches, and fell on 167 days. In the previous ten years there was an average of 28.68 inches, which fell on 180 days, thus showing that the past ten years were drier than the previous decade.—GEO. SUMMERS, *Sandbeck Park.*

— DECEMBER WEATHER AT DOWLAIS.—The following is a summary of the weather here for the past month:—Sunshine, 25 hours 55 minutes. Sunless days, seventeen. Snow, 0.23 inch; rain, 9.48 inches, making a total fall of 9.71 inches. Greatest fall 0.94 on the 4th. Number of days on which rain fell, twenty-two, and snow on three days. Mean maximum for the month, 39°, with 47° on the 28th as the highest reading. Minimum 32°, with 21° as the lowest reading on the 16th. The wind was in the E. and S.E. on eleven days, and in the N. and N.E. on nine days. Totals for the past year:—Rainfall, 45.27 inches. Sunshine, 1223 hours 50 minutes. Sunless days, ninety-six.—W. MABBOTT, *Dowlais, Glamorgan.*

— EUCHARIS STEVENSI.—Beautiful and valuable at all times are the flowers of the old and well-tried *Eucharis amazonica*; but too few, I fear, sufficiently estimate the true worth of *Eucharis Stevensi*, one of the later additions to the family, for decorative purposes. The flowers are not so large as *E. amazonica* and are more erect, consequently they can be used in a variety of ways for bouquets and other floral decorations. It is a capital grower and free bloomer, whilst the dreaded mite does not seem to touch it. With a few good pots one is rarely without flower. After having tried many composts I cannot get anything more suitable than good Kentish loam mixed with sharp silver sand, the pots being well crocked. Owing to its being seen in too few collections I thought this note might bring a deserving variety into greater prominence.—R. P. R.

— SENECIO GRANDIFOLIUS.—Several large specimens of this handsome *Senecio* may now be seen in flower in the temperate house at Kew. For cool greenhouse or conservatory work this is a very useful plant. During summer the abundantly produced dark green leaves, which individually average 12 inches in length by 8 inches in width, are very conspicuous; whilst in winter, with the addition of large heads of deep yellow flowers (which open from December onwards through January and February) the plants are even more effective. Although this plant can be successfully grown in pots, it does much better if planted out, the leaves and flower heads being correspondingly larger through the more liberal treatment. After flowering the young growths should be cut back to within a few inches of the old wood. This species is a native of Mexico, and at Kew grows to a height of 10 feet.—W. D.



CATTLEYA PRINCE OF WALES.

THIS Orchid, which was added to the list of hybrid Cattleyas about five years ago, is of great beauty, but probably not very abundant, which would account for "Young Orchid Grower" (page 20) not having met with it. C. Prince of Wales is one of the most delicately beautiful that has yet been raised, which, considering

rubra oculata, the soft rosy shade of the former telling greatly in these dull dreary days. The spikes are not quite so fine as in former years, owing to alterations which interfered with the earlier stages of their growth, but still they are of the greatest value. I had intended sending you a few spikes of C. Veitchi, also a cultural note, but indisposition has prevented my doing so. I will do so at the earliest opportunity.—R. P. R.

HYBRID CYPRIPEDIUMS.

IN the second paragraph of my note on this subject, page 556, I should have made an exception in favour of C. Sallieri, as this plant certainly appears to be a natural hybrid between C. insigne and C. villosum. It has the dorsal sepal of the former, while the petals have the decided median line as seen in C. villosum, and also the shining brown tint peculiar to that species. C. Sallieri is named

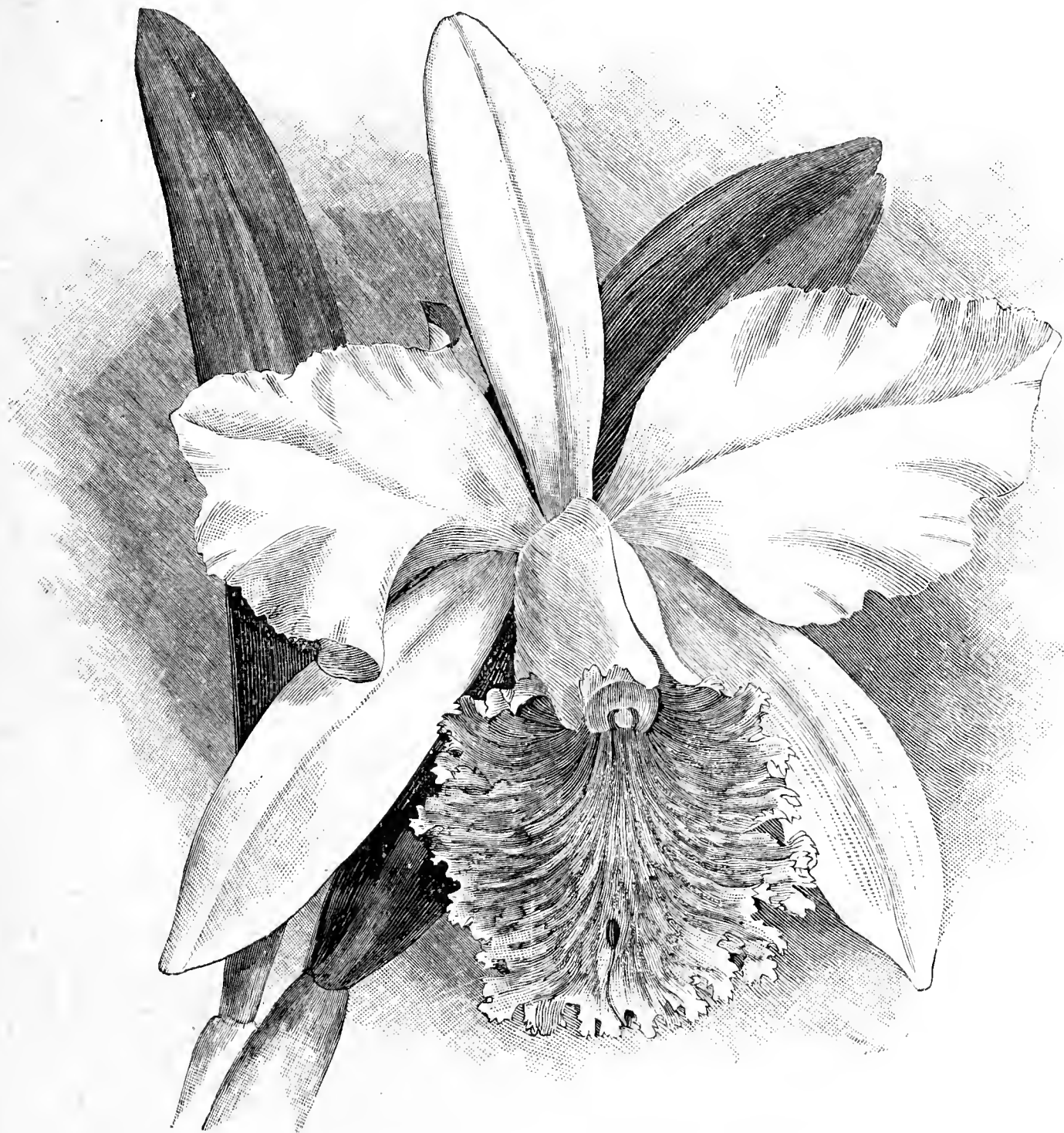


FIG. 5.—CATTLEYA PRINCE OF WALES.

the number now in cultivation, is high praise. It is said to be the result of a cross between the white Cattleya Mossiae Wagneri and C. calummata. The plant shows characters that might be considered intermediate between the two parents; and there is no question that it is a delightful and valuable seedling. The sepals and petals are pure white, as also is the lip, with the exception of a series of pale rose veins in the centre, and a finely frilled margin. The woodcut (fig. 5) admirably depicts the form and markings of the flower.—ORCHIDIST.

CALANTHES.

WITH the advent of the many new Orchids that have appeared during the past few years we must not lose sight of the fact that many of the older varieties must be strictly kept in mind, and for winter work we shall have to look long ere we find anything to surpass the Calanthes. Our stove at the present time is a picture, with 6, 8, and 10-inch pots filled with Calanthe Veitchi and C.

after a French gardener, who was supposed to have raised it by crossing these two species, but who, as a matter of fact, selected it from other plants of C. insigne and sent it out as C. Sallieri. It has also been imported since by several orchidists, and not long since I saw a specimen of C. S. Hyeatum that flowered from an importation of C. insigne. This exception, however, does not alter the fact that natural hybrids in the genus are few and far between.

DENDROBIUM WARDIANUM.

The flowers of this beautiful and popular Dendrobe are now in full beauty, large plants with their long pendulous stems wreathed from end to end with the chaste blossoms having a truly delightful effect. Why some cultivators tie these stems erectly to stakes and other ugly contrivances I cannot imagine, for it entirely ruins them from a decorative point of view. It is certainly a cultural aid, for if the plants are properly fixed at potting time no support

of any kind is needed. Should the roots be scarce, and the plants in consequence difficult to make rigid in their pots or pans, a stake to one or two of the old pseudo-bulbs may be given, but the young shoots have fixed themselves by means of the roots long before any artificial support is necessary to them.

As a rule *D. Wardianum* commences to grow very early in the season. This necessitates the plants being kept in a good light, otherwise the shoots will be apt to damp off. Very little water will be needed until they commence to root on their own account, and just before this root emission is the most suitable time to renew the compost. Like most of the deciduous kinds *D. Wardianum* thrives best in pans or baskets of very restricted size, the small pans made for suspending, and now so much in vogue, answering for them very well. If baskets are used the plants thrive well, but are more difficult to remove than from the pans.

Half fill the pan with drainage, and fix the plants firmly in the usual peat and moss mixture. They must be taken at once to the warmest house at command, and a brisk moist temperature kept up all through the spring and summer. Only a very little shading is needed, and this of the lightest description, so that the plants in a manner ripen as they grow. The growth in most cases will be very rapid, and by August the terminal leaves usually appear. When the stems have quite done growing hang the plants in any light unshaded house for a week or two, and as the leaves begin to lose colour and fall lessen the water supply by degrees.

The ripening process is very important, and may be hastened by placing the plants out of doors in the full sun for a few weeks, protecting them only from the heaviest rains. They must not be kept absolutely dry at this time, but a very limited supply of water suffices. Take them under cover before any danger of frost is apprehended, keeping them as cool as possible, and after all the leaves are off quite dry. The plants may then have a long and complete rest; where there is a good stock introducing them to heat successively to keep up a longer display. They will require from six to eight weeks to come into flower, but by keeping quite cool and dry last a long time in good condition. By this means I have had them as late as May for exhibiting, but this is not conducive to the continued health of the plants, they not having time to get thoroughly ripe again before the winter.—H. R. R.

FLORAL FACTS AND FANCIES.—24.

THE world is full of music to those who have an appreciative ear, and one advantage of Nature's melodies is that they cost us nothing. Something may be said in favour of sounds that might appear harsh or unmusical if it were not for their surroundings, which make them agreeable. People have laughed at Cowper, because he said in one of his letters that, though he would not think of hanging up a goose in a cage to hear it at home, yet a goose upon a common was not a bad performer, but we may allow there is truth in the poet's remark. Again, amongst the sounds produced by the vegetable world the creaking of the trees in a wood during autumn winds is not unpleasing, yet within a confined space this would very soon be annoying. When much of England was fen and marsh it is probable our forefathers, even if semi-savages, were not unmoved by the murmurs of Reeds and Rushes, that of the former especially so common as an edging of streamlets—

"The Reed with its ringlets of waving brown,
Which age into locks of grey silky down,
Whose shafts ever sing to the softest sigh,
And bend to each breeze as it hurries by."

From a far distant period the Reed has been a symbol of "music." One of the earliest instruments of the rustic performer was made from the stalk of some Reed—the primitive flute or pipe, sometimes also called "organ." The old Greek legend connects the plant with Pan, the rural divinity, and Syrinx, who, to escape the too affectionate god, leaped into a river, and was there transformed into a Reed. The music of it became a sound of mournful reproach to Pan, but he was prompted to fashion a pipe out of the stem. Such is the legend which seems to refer to the tall *Arundo phragmites*, once much in requisition for thatching. Gerard tells us that he sought in vain for information concerning the growth of the Cypress Reed (*A. donax*), a foreign species he wished to cultivate, and which was used in Turkey to make staves carried by dignitaries, being often much ornamented. A conspicuous member of an allied family, the Reed Mace (*Typha latifolia*), which can make its 8 feet of height, has served not only as a symbol of authority but also as a rod, and Loudon states that several Italian painters have drawn this Reed in their pictures, supposing it to be the one presented to the Saviour of men. Hence its brown velvety catkins became symbols of "insult." On the Continent and elsewhere pillows are

stuffed with their down. Nearly every land exhibits this plant, which is abundant even on the swamps of New Zealand. At one time the Spitalfields weavers used the heads for brushing silk and velvet.

Placed now in a separate genus from the other Reeds, *Amphipha arundinacea*, by its straw coloured panicle of flowers crowded into a sort of spike, reminds us of "security," through the function it fulfils, which is one highly useful. This is the Sea or Mat Reed, which also has the obscure name of Marram, and by its network of creeping jointed roots forms banks along the shore, which prevent the ocean from encroaching on the land, while, by binding the sand together, it keeps that in its marginal position. Its stem is rigid, smooth, almost solid, and the involute bluish leaves are sharp pointed. A similar service is rendered mankind by some of the Lyme Grasses, which have great power in resisting the force of the sea. *Elymus arenarius* is tall, and has long leaves, but it seldom flowers on our coasts. The rarer Pendulous Lyme Grass has been grown in gardens, this is *E. geniculatus*, a slender elegant plant, with a spike sometimes 2 feet long, which takes a bend at a sharp angle after the expansion of the florets. Some of the Fescues also help to bind together sandy banks, as, for instance, *Festuca rubra*, the creeping roots of which extend for yards. Formerly people thought the shorter Fescue Grasses were excellent food for sheep. The name was suggested by the wiriness of the stem, and few Grasses stand cold better than these.

Symbolic of "skill," or, as others say, of "war," the Arrowhead with its warlike name of *Sagittaria sagittifolia* is a beautiful plant, noticeable along some English rivers. The flowers are in spikes; each blossom has three petals of brilliant white, each having a spot of purple or violet. It was, however, the leaves that suggested its name; these grow in masses, springing from the root, and are shaped like the head of an arrow. Attached to the roots are tubers, containing starch, but also acrid matter, which may be removed by washing; at one time they were believed to contain a cure for hydrophobia. Allied to this plant are the Arrow Grasses of the genus *Triglochin*; they have mostly narrow leaves and a tallish spike of green flowers. So are the Water Plantains fond of ponds and lakes. The common *Alisma plantago* has large leaves, oval, of a delicate green, with flowers of rose or lilac, the panicles being much divided; the petals are three, falling off so rapidly that the plant seldom makes a good display. Some people say this is the "plantage" mentioned by Shakespeare in the following line, "As true as steel, as plantage to the moon." Hence the plant is regarded as one of the emblems of truth. The idea seems to have been that the Water Plantain, like some other species, turned its flowers so that they should follow the course of the moon, just as the Sunflowers were supposed to move towards the sun. Perhaps it was from this notion that in popular belief the plant was much esteemed as a wound herb; no doubt it is slightly astringent. Curious is the starry-headed Water Plantain (*A. damasonium*), having its white flowers in clusters; the capsules take the form of a star.

We cannot see exactly why the flower of the Branched Bur-reed (*Sparganium ramosum*) should represent "rudeness;" the significance of the popular name is evident, for when in bloom the plant looks as if it were covered with yellow feathery balls; these are succeeded by brownish capsules, like miniature Apples. The unbranched *S. simplex* has fewer flowers, but they are larger and also more feathery. The Bulrush (*Scirpus lacustris*) is said to remind us of "indiscretion," and I presume so do its relatives, for it was to the Rushes that the unwise individual of olden time, bursting with his secret, went and whispered the fact that his king had ass's ears, and, according to the legend, was surprised to hear the plants proclaiming it to everybody who came near. This resembles rather an overgrown Grass with its brown soft spikes, being often 6 feet high. Frequently it has for its companion in the marshes the shorter *Juncus conglomeratus*, having a dense head of flowers issuing from the side of the stalk, used in the Tudor times for strewing floors, and also for candles when dipped in fat. Still shorter is the Moss Rush, oddly called Goose Corn (*J. squarrosus*), which has only a few large flowers on its panicle; it used to be very common on heaths near London. Apparently the Toad Rush (*J. bufonius*) got its name from a fancied resemblance the capsule has to the shape of a toad. But the monarch of the Rushes is the stately *Butomus umbellatus*, which has three sepals and three petals of red, also nine stamens, symbolic of "confidence in Heaven," it is said. The leaves are handsome, too; but their sharp edges, handled unwarily, will wound like a strip of thin glass.

Eastern sages and teachers, in remote ages, took the fragile flowers of the Grass tribe as an emblem of the brevity or uncertainty of human life, but, besides that, Grass generally is a representative of "usefulness." Special meanings have been attached to the flowers of some kinds. The flowers of the Foxtails in the

genus *Alopecurus* represent "cunning;" the soft species of *Holcus*, of little value, tell of "uselessness," and the handsome *Melic Grasses* suggest "elegance." Well may the Quaking Grasses, by their agitation, remind us of "restlessness" or "fussiness," but "volatility" does not seem to be so suitable a meaning for the Rye Grasses. The Holy Grass (*Hierochloa borealis*), which grows in the far North, was so named because at one period it was gathered to strew about churches on some festivals. Like the Reed, the Oat is a symbol of music, and the golden Wheat of our fields is a sign of plenty.—J. R. S. C.

APPLES.

JUDGING AT THE CRYSTAL PALACE.

IN reply to Mr. McIndoe (page 615, last vol.) I wish to say I brought forward no argument of my own (in a previous note), but simply wrote to state a fact. The R.H.S., in its schedule of the autumn fruit show held at the Crystal Palace, arranged two lists of Apples, one headed "dessert Apples" the other "cooking Apples," while under another heading in the schedule a clause is inserted for the guidance of both exhibitors and judges relating to the collections, which says, "In distinguishing dessert and cooking varieties be guided (as far as it goes) by Division 4." Under the above distinct headings Emperor Alexander Apple is placed in the latter.—C. HERRIN, *Droghmore, Maidenhead*.

[Our correspondent is quite correct. The Society evidently felt the desirability of giving precise guidance on the point, and it would be well if other societies would follow the example, as then exhibitors would know that if they infringed the *wording* of the schedule, and especially with "intention to deceive," not otherwise, they would be liable to disqualification. [Code, page 11, par 38.] With two lists of Apples only we cannot imagine many persons doing otherwise than following the example of the R.H.S. in respect of the Apple in question, and in our opinion it was placed in the right list.]

DISQUALIFYING AT SHOWS.

ALL exhibitors should be grateful for the test you have submitted for determining the question of disqualification at shows—namely, "Is any judge entitled to disqualify any exhibitor who has not infringed any rule, or ignored any condition or stipulation in the schedule that may be provided for the guidance of all." There can be little doubt regarding the answer such a question is likely to elicit—viz., a decided No! Every exhibitor is justified in availing himself of the privilege of staging anything he may choose within the rules of the schedule, and no judge has any right to disqualify an exhibit simply because it contains something out of keeping with his personal views. Is it not as much the duty of judges as of exhibitors to act strictly within the terms of the schedule?—R. C. H.

[Before closing the discussion on the York disqualification, which we think will do good, we may say (1) That a long communication has been sent to us, the result of a request by persons interested in the question, and who supplied the writer of the communication with materials and a schedule for the purpose of obtaining his views. (2) That the said writer, who is an old exhibitor, arrives at no more definite conclusion in seven hundred words than that "exhibitors must read the schedule of a show, and take their chance." (3) That no schedule has been sent to us by either of the disputants or officials. (4) That Mr. Riddell is entitled to say he is disappointed by the decision arrived at not to let the case go to arbitration before a high and impartial tribunal, willing to act from a sense of public duty.]

CLASSIFICATION OF APPLES.

AS I think I was one of the first (last year) to call attention to the necessity of the classification of Apples by some recognised authority for exhibition, I should like to have my say on the proposals put forward by Mr. Wilks.

I am sorry I must differ from him and vote for three lists, Kitchen, Table, and K.T., and this simply because things are so, and no amount of expediency or argument can alter the fact. Blenheim Pippin, for instance, is a good-looking Apple and a good dessert Apple, and to label it as not the one or the other would be, in my opinion, a mistake.

I see no reason why it and a few similar Apples should not be exhibited in both classes without confusion; but if, as seems likely, I should be in a minority, I would loyally accept the decision of the R.H.S.—W. R. RAILLEM.

I WAS pleased to read the letter in last week's Journal written by the Rev. W. Wilks on the classification of Apples for show purposes, and to find that the Royal Horticultural Society is willing to take up the question of kitchen and dessert Apples. Why not Pears also, and give us authoritative lists of each?

Mr. Wilks asks whether two definite lists are to be made, or are three wished for. As far as my opinion and experience go, I should say two only. I cannot see that a third list is at all needed. For instance, if any horticultural society wished to offer prizes for a collection of six, twelve, or twenty-four varieties of Apples, it could be so expressed in their schedule without reference to dessert or kitchen, when, of course, any variety would be admissible; but when dessert or kitchen are specified an authorised catalogue of such from the Royal would be a great assistance to exhibitors and judges.

If such a list is published, the question will arise, How is it to be put into practice? In a great measure it must remain optional with provincial societies, but I think all those in union with the Royal should be bound by its rules. Societies not in union could insert in their schedule something like the following notice:—"The R.H.S. definition of dessert and kitchen fruits will be adhered to;" and when such notice is not given judges would be glad of such an authority as the Royal to refer to in case of disputes.

These presumed lists, and the above remarks, of course do not apply in any way to private family use.—J. EASTER, *Nostell Priory Gardens*.

COOKING AND DESSERT APPLES.

I HAVE been wondering whether much of the trouble which has resulted of late, and the discussion which has grown out of that trouble, is not more the product of the improper use of arbitrary terms than of common sense requirements. Thus we find the classification of certain named Apples in the R.H.S. fruit show schedule quoted as authority in one way, and a member of the R.H.S. Council, Mr. Bunyard, writing in deprecation of that view in relation to so-called intermediate varieties. Now, in providing for named single dish classes in this schedule why are the arbitrary terms cooking and dessert used at all? If any specific variety be asked for what consequence is it whether called cooking or dessert? Only samples of the variety will be shown in its proper class, and it is entirely unimportant that any other heading than its class number and name be furnished.

The only classes of a single dish nature to which the terms may apply are those for "any other variety;" but unless these are tasted, or some other more rigid rule of judging be applied, they may for any good they are be excluded. The framers of the schedule should insert separate classes for all the known best, and the rest will, if worth anything, find representatives in the collections. Then in relation to these it will be said there must be some classification. That is so, no doubt, but it should not be of the arbitrary nature at present in existence. I greatly prefer collections "for Size and Appearance," and the same "for Flavour and Appearance." In such cases there could be no disqualifications whatever, as all the fruits would be judged according to their merits in their respective classes. But when the arbitrary terms "cooking" or "dessert" are introduced then you open the door at once to objections, that "this is not a cooking Apple" or "that is not a dessert variety," and so on, leading, as the recent discussion has shown, to endless dissension, and entirely without reason.

We have seen many inferior eating varieties hard in flesh, and comparatively flavourless, classed as dessert varieties, and admitted to such so-called collections, that really have not one tithe the beauty of appearance or soft pleasant flesh which characterises many others that have been arbitrarily excluded from "dessert" classes, simply because of the employment of arbitrary terms. Medium sized pretty fruits of Duchess of Oldenburg, Emperor Alexander, Blenheim Pippin, Cox's Pomona, Peasgood's Nonesuch, Gascoigne's Scarlet, Lady Henniker, Roundway Magnum Bonum, very large, yet one of the best flavoured Apples in cultivation; Prince Albert, Queen Caroline, just now first-rate; and many others.

I wonder how many gardeners there are, including some who have written strongly in favour of arbitrary classification, who do not send some samples of those varieties to table when they have them, and have neither Cox's, Ribstons, or King of the Pippins for use? Nay, it is possible to tire of having these excellent varieties every day. If the R.H.S. will set the example by refraining from employing henceforth arbitrary terms in relation to their Apple or Pear classes they will do much to clear the air of the existing confusion and disputation.—A. DEAN.

[This is a new idea and worthy of consideration. The question of dessert and culinary Apples is entirely one of individual fancy.]

KEEPING APPLES.

THAT every variety of Apple, chiefly according to the softness or firmness of its flesh, has its ordinary keeping period, is of course the case; but keeping properties may be aided or deteriorated by methods or places of storing. Still, kept with ever so much of care there must be certain deterioration if the varieties be kept over their natural period. I have often wondered how many of the fine looking Apples shown late in winter are really good in quality. If they be not good, there can be no merit whatever in the keeping of them so late. Then it is well worth ascertaining what methods of keeping do best, apart from appearance, to preserve quality in the flesh. That is a matter with respect to which we may well have much of experimenting. Very low temperatures will not do for Apples, although in such cases appearance may be preserved.

A very cold atmosphere does undoubtedly deteriorate flesh quality, just as a dry atmosphere shrivels and absorbs juice or moisture. If ever British growers of Apples are to compete with the winter imports of these fruits from America, they will have to discern which are not merely the cheapest, but also the most efficient means of storing to preserve flesh quality, as well as good appearance, as long as possible. It is probable that the most expensively built stores would not be by any means the best. Concrete built sheds, having walls 12 inches thick, and thatched heavily with straw, especially if erected beneath trees, would probably not only exclude all frost, but keep a very equable temperature within. If, too, the floor be the soil only, the shelves made of open trellises with the rough edges planed off, and changes of air occasionally permitted, the very best results would be obtained.—A. K.

WINTER PRUNING.

(Continued from page 603 last vol.)

WALL TREES.—Apple trees are not often grown against walls. In the northern parts of the kingdom trees are frequently, as compared with the southern districts, found against walls in old-fashioned gardens, and such trees, for beauty of training, as are only equalled by the similar examples in Pear trees. The finest Apples I have ever seen were grown on a tree against a stone wall 590 feet above sea level, and within a quarter of a mile from the coast on a south aspect. It was the little known Scotch variety named Melrose from having been introduced from the Continent by the monks of Melrose Abbey. On grafting it on Paradise stocks I found the trees bear grand fruit in the third year, $3\frac{1}{2}$ inches to 4 inches wide and 3 inches to $3\frac{1}{2}$ inches high, highly coloured on the sun side. The fruit was of excellent quality, sweet and pleasantly subacid, suitable for culinary or dessert purposes, and in use from October to January. Unfortunately, the trees were very much attacked by canker fungus (*Nectria ditissima*), the spores, or rather their germinal tubes, not entering by a wound, but by piercing right through the bark on a smooth part.

The American Apples, as a rule, do well against walls, quite rivalling the finest imported examples, there being many walls that might be profitably occupied with Apple trees, fine specimen fruit fetching 2s. to 3s. per dozen. Fan-training is the best, as when a limb goes off or gets too long in the spurs it is easy to train a growth in from the base, which will commence bearing in the third year. Nothing is simpler than training-in shoots so that when they have grown a yard they will be 1 foot apart, the leading growths being taken forward and side growths stopped at the third good leaf, not counting the small basal ones. This can be done about the middle of July, and spurs will form at the base. While the tree is extending all goes well, as there is a reciprocal action between the roots and branches; but when the limit of the space is reached spray is made in response to the summer pinching and the removal of growths in the winter, and then it is a question of leaves instead of fruit.

If the spurs are kept thin from the first, so that light and air has access to the foliage, the cropping may be such as to counteract the tendency to growth beyond that necessary for continued fertility; but if the tree ever become crowded with spray that cannot be restrained by summer pruning, either root-pruning must be resorted to and the spurs well thinned, or the limbs cut boldly back and the training recommenced. The sudden check appears as salutary as in re-grafting, the growth not being excessive, though the roots are not interfered with. Thinning the spurs has some effect, but whether from the trees having more leaves than a cut-back, the results are not as satisfactory. Nevertheless, no tree can bear with the spurs overspread by a thicket of spray; therefore thin the spurs, cut away the strong wood growths, and keep as near the wall as possible the stubby shoots, so as to get short stout spurs.

Apple trees against walls sometimes become infested with mussel scale. There is nothing better than a caustic soda and pearlash wash, 1 oz. each to a gallon of water, dissolving each separately in a small quantity of hot water, then adding the two together, and the remainder of the water hot, using with a brush at a temperature of 120° to 130° , taking care to reach all round the branches and stem. It suffices if the whole be well moistened without running down the bark to the roots, which must be avoided. Boiled linseed oil is an old-fashioned and good remedy, but must be put on as soon as the leaves fall, as the eggs are not sufficiently developed to escape death with the parent. Similar remarks apply to petroleum, neither oil being of any use after the parent scale has ceased existence, and left her eggs safely in a sort of down resisting the oils. Of the two, boiled linseed oil is more efficacious, but the caustic soda (hardening) and pearlash (softening) wash is better than either.

APRICOTS.—This fruit is going out of fashion, even with cottagers who formerly had trees on their cottages which sometimes paid the rents. Plums and Pears that bring next to nothing have supplanted the delicious Apricot trees. This is a pity, for the imported Apricots are not nearly as fine as British wall fruit. The trees are very accommodating; all that is necessary is to cover the wall space with growths so that the leaves have light and air playing between them, the side growths being shortened to about three leaves of their base, and the spurs at the winter pruning being shortened so as to keep plenty of stubby and promising ones near the wall. Old and bare shoots or branches are also cut out, along with dead spurs, young growths taking their place. Nothing could be easier than training Apricot trees, as when young growths are laid in they are sure to form spurs and bear fruit abundantly. That is the whole art—an even spread of bearing wood all over the space, and not cramping the trees for space. Cottage and farmhouse fronts, facing south, are far better than garden walls for Apricots, as the projecting roofs secure a drier atmosphere and some protection at blossoming time, but the space is the thing—plenty of height and breadth.

On a house wall 24 by 24 feet 1500 Apricots a year have been gathered for a generation, and a man about four days a year does all the work that has to be paid for. The trees are Moorpark, or rather the variety Hemskirk, and neither gum nor the branches die off. The soil is a light loam of the new red sandstone formation, is practically an alluvial silt left dry by the receding water. The only insects bothering the grower are the caterpillars of the Apricot moth (*Tortrix angustiorana*), and these are got rid of by pinching the rolled leaves between the finger and thumb. When the red appears on the buds and the white

just peeping on the forwardest is the usual time for pruning Apricot trees, but it is better done in the early autumn by a practised hand, as the wounds heal better, and the buds can be told with precision.

CHERRIES.—Everybody likes Cherries. They, like Apricots, do better on high than low walls, and are more obliging in the matter of aspect. There is the large glossy black Early Rivers and the equally large shiny waxen yellow with a glowing cheek, Governor Wood, for south aspects; May Duke and many others for east, and Morello for northern outlooks. They bear grandly, and do well on all but wet clayey soils. Fan training is the best for them, as the space can be covered evenly with branches at about 1 foot apart, and beyond stopping the summer growths to about three leaves, not counting the basal leaves, cutting these back to an inch of their base early in autumn, and training the leading shoots in their full length, are very little trouble. Morello bears on both the young wood of last year and on spurs, therefore it is a question of cutting out old worn out wood and laying in young. This has to be provided for at summer trimming, but it is a great mistake not to make provision for fruit on spurs by pinching any shoots that there is not room for laying in, and will not cause overcrowding, to about three leaves, counting the basal ones in this case, for though every bud formed may give a cluster of Cherries, these will not drop like Peaches or Nectarines for want of growths above them.

The great pest of Cherry trees on walls is black aphid (*Aphis cerasi*). How this creature hibernates over the winter I could never make out satisfactorily. Sometimes eggs are laid on the spurs at the base of the buds, and hatch out after the trees have got fairly into leaf, and at once fasten on the tender points of the shoots and young leaves, causing the latter to form shelters for them against the weather. In other cases there are no eggs on the buds or just below them, yet the points of the shoots become infested all the same, and never a winged one have I come across at this early stage. That there has been one is unquestionable, but whence it came I could not make out very clearly, though finding the species on various herbaceous plants. Can any of your correspondents throw any light on this point? The flies always migrated even from wild Cherries to herbaceous plants when the growths become too hard for sucking.

On Morello and trees under glass the parthenogenetic generations go on indefinitely, but in the case of the Morello a hard winter causes a lull, and the infection recurs late. It is this late brood that I should like to get at, but could never make out clearly that they came in winged form from other infested trees, wild or cultivated, nor fix upon the exact herbaceous plant for the earlier winged form.

Besides the aphid caterpillars of the cloak moths (*Spilonota* species) attack the young growths, and even the young Cherries. No winter dressing appears much use against either aphides or the caterpillars, still there is no harm in using a composition that will kill what there then be on the trees, and make them distasteful to any coming after. The caustic soda and pearlash wash is cleanly and effective, but must be used somewhat weaker on stone fruit trees.

FIGS.—This fruit has gained favour. It does well on buildings with projecting roofs, and must have a south aspect. Brunswick, Brown Turkey, and White Marseilles are the best varieties, as without size and good quality it is useless striving to catch the public eye. Firm calcareous gravels suit Figs. The question, then, is to secure stout short-jointed wood by having the branches sufficiently far apart, and to keep up a succession of bearing wood from base to extremity. Winter pruning is best done as soon as the leaves fall, cutting away the bare and reserving the young growths evenly all over the space. Protection may be adopted where circumstances admit, and is a good old plan. It, however, is only needed in very severe winters, and probably does more good by preventing sudden thawing after severe frost than anything else.—G. ABBEY.

(To be continued.)

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE first annual meeting of the Worcester and District Auxiliary of the Gardeners' Royal Benevolent Institution was held some days ago at the Guildhall. Mr. R. C. Smith Carrington was in the chair, and there were also present Messrs. Crump, J. W. Sedgley, G. Griffin, W. Child, D. Cowan, A. Young, W. S. Harlstone, E. Blackwell, J. W. Horsman, H. Russell, J. Williams, J. Justice, G. Mason, H. Whittington, F. Styles, C. Crookes, and J. H. White (Hon. Sec. and Treasurer). Apologies for absence were received from Mr. Alfred Baldwin, M.P., and several gardeners.

The balance sheet for the year showed that the receipts were £175 9s. 6d., and the expenditure £172 5s. (£164 15s. of which has been sent to headquarters in London), leaving a balance in hand of £3 4s. 6d. The Committee in its report expressed its sincere thanks to those who had given such handsome donations to the branch, and especially to Earl Beauchamp for so kindly allowing his gardens to be thrown open for the benefit of its funds. It reported that there were already nine new subscribers to the auxiliary, and that Mr. John Corbett had promised to treble his subscription, and Messrs. Smith and Co. had also increased their subscription to £2 2s. The Committee, on behalf of Mr. David Davis, desired to express his thanks to all those who supported him at the last election, and trusted by their votes at the forthcoming election to carry his case. The Committee urged upon all the necessity of joining the Institution. The report and balance sheet were adopted, on the proposition of Mr. Harlstone, seconded by Mr. Russell.

The Secretary read a letter he had received from the head office saying that the Committee desired to place on record its hearty appreciation of the services rendered to that Institution by Mr. J. H. White as Hon. Secretary and Treasurer of the Worcester and District Auxiliary, and beg to tender sincere thanks for his kind and successful efforts on behalf of the charity. On the proposition of Mr. Crump, seconded by Mr. Hurlstone, Earl Beauchamp was re-elected President; and on the proposition of the Chairman, seconded by Mr. Child, the Mayor (Mr. C. W. Dyson Perrins) was elected Chairman of the Executive Committee. The following were elected on the Executive Committee:—Messrs. Crump, Child, Cowan, Hurlstone, Mason, Russell, and Young.

The Chairman, in proposing the re-election of Mr. White, said that the branch was to be congratulated upon having such an excellent officer. The success to which the head office had testified had been due solely to Mr. White's exertions. Mr. Child seconded, and the proposition was carried; Mr. White briefly responding. Subscriptions were announced from several new members. Mr. Young called attention to the fact that many gardeners in the district were members of the Institution, but not of the auxiliary, and suggested that some steps should be taken to bring them into it, but nothing was decided upon.—("Worcester Daily Times.")

PEAR MARIE BENOIST.

THOSE who have grown Marie Benoist Pear (fig. 6) esteem it as a variety of considerable merit. It is a very valuable addition to late Pears, worthy of cultivation, and the tree grows well and bears freely. The fruit is large, irregularly turbinate, and more swollen on one side than on the other. Skin bright green, dotted and lined with russet, and covered with patches of fawn-coloured russet. Eye small, open, and deeply set. Stalk very short and thick, obliquely inserted, with a large swelling on one side of it. Flesh white, tender, very melting, and slightly gritty, very juicy, sweet, and delicately perfumed. An excellent dessert Pear, ripe during January and February. A medium-sized fruit is represented. This was raised by M. Auguste Benoist, a nurseryman at Brissac, not far from Angers, and named after his daughter Marie.

ROCHFORD HOUSE.

ROCHFORD HOUSE, the residence of Mrs. Williams, is most pleasantly situated in the midst of park-like scenery on a gentle eminence, two miles E.S.E. of Tenbury, in the extreme western part of Worcestershire. The ancient town of Tenbury is picturesquely located in the valley of the Teme. It is surrounded by charming scenery, valleys and hills richly clothed with Hop plantations, fertile orchards, verdant meadows, and smiling corn fields. Though a fact not well known, but found by the old historians, Tenbury is celebrated as the birthplace and favourite residence of the noble Caractacus, which circumstance will lend a double charm to a place so rich in Nature's gifts.

The walk from Tenbury to Rochford is amidst some of Nature's most beautiful pictures; deep ravines and rising ground, the latter commanding extensive views of the distant hills. It is not on account of its extensive ranges of glass houses or its broad acres of pleasure grounds that we wish to bring the place into prominence, but the superb hardy fruit that is so successfully cultivated year after year.

We had the pleasure of visiting these gardens during the Plum harvest, towards the end of August, and then again about the middle of December, 1896. On entering the pleasure grounds we are at once surrounded with fine evergreens and charming flower beds, furnished for the winter with dwarf shrubs and hardy spring-flowering plants, including Forget-me-nots, Wallflowers, Daisies, Pansies, Polyanthus, Auriculas, and the usual run of hardy bulbs. We noticed some handsome Conifers, remarkable for their beauty and symmetry of contour, such as Cedars of the Deodara type, also *C. Libani*, *C. atlantica*, *Thuja Lobbi*, *T. elegantissima*, and fine Cupressuses.

In the adjoining greenhouse the Chrysanthemums were nearly over, but the remnant that was left showed plainly that the flowers had been of no mean order. Roman Hyacinths were just bursting into flower, and we also saw fine Primulas, Cyclamens, and Callas. In the stove, separated from the greenhouse by a glass partition, there were the usual plants which are generally found in these structures.

We now pass beneath the shade of tall trees, and enter the kitchen garden; it is about 1½ acre in extent, surrounded by well-built brick walls, a border about 10 feet wide skirting the walls, and the centre laid out in six squares. Many of the squares are separated from the walks by a broad bordering of the Mossy Saxifrage (*S. hypnoides*), which during its season of bloom gives the garden a bright and cheerful appearance. On the south side was the Peach range, well furnished with fruitful trees, including Barrington, Old Noblesse, Crimson Galande, Walburton Admirable, Dr. Hogg, and Elrage Nectarine. On an open wall with a south aspect there were fine Apricots, such as Large Early and Moorpark; and of Peaches Rivers' Early, Sea Eagle, and Golden Eagle. On the north wall we noticed good and well-trained Cherries of the Morello section; and such Plums as Early Prolific, Victoria, Golden Drop, and The Czar. The west wall was devoted to Pears, and

included Citron des Carmes, Pitmaston Duchess, and Williams' Bon Chrétien.

It was, however, the pyramid Pear trees round the garden walks that were the objects of the greatest interest. They are from 8 to 12 feet high, and fine specimens of skilful culture. We saw the trees at the end of August, when they were laden with fine fruit, and then again in December, when every branch was smothered with fruit buds. The remains of the fruit left in the fruit-room bore ample testimony to the excellent crops that had been gathered. Mr. Paintin, the gardener, is renowned as a fruit grower of the first order. At the autumn shows at Birmingham, Hereford, and Leominster he is always considered a formidable opponent, and generally carries away the leading prizes.

The most popular sorts of Pears were Doyenné d'Été, Doyenné Boussoch, one of the best Pears in the garden; Beurré de Capiaumont, Brown Beurré, Maréchal de Cour, Louise Bonne of Jersey, Marie Louise, Marie Louise d'Uccle, a fine late Pear of good quality; Doyenné

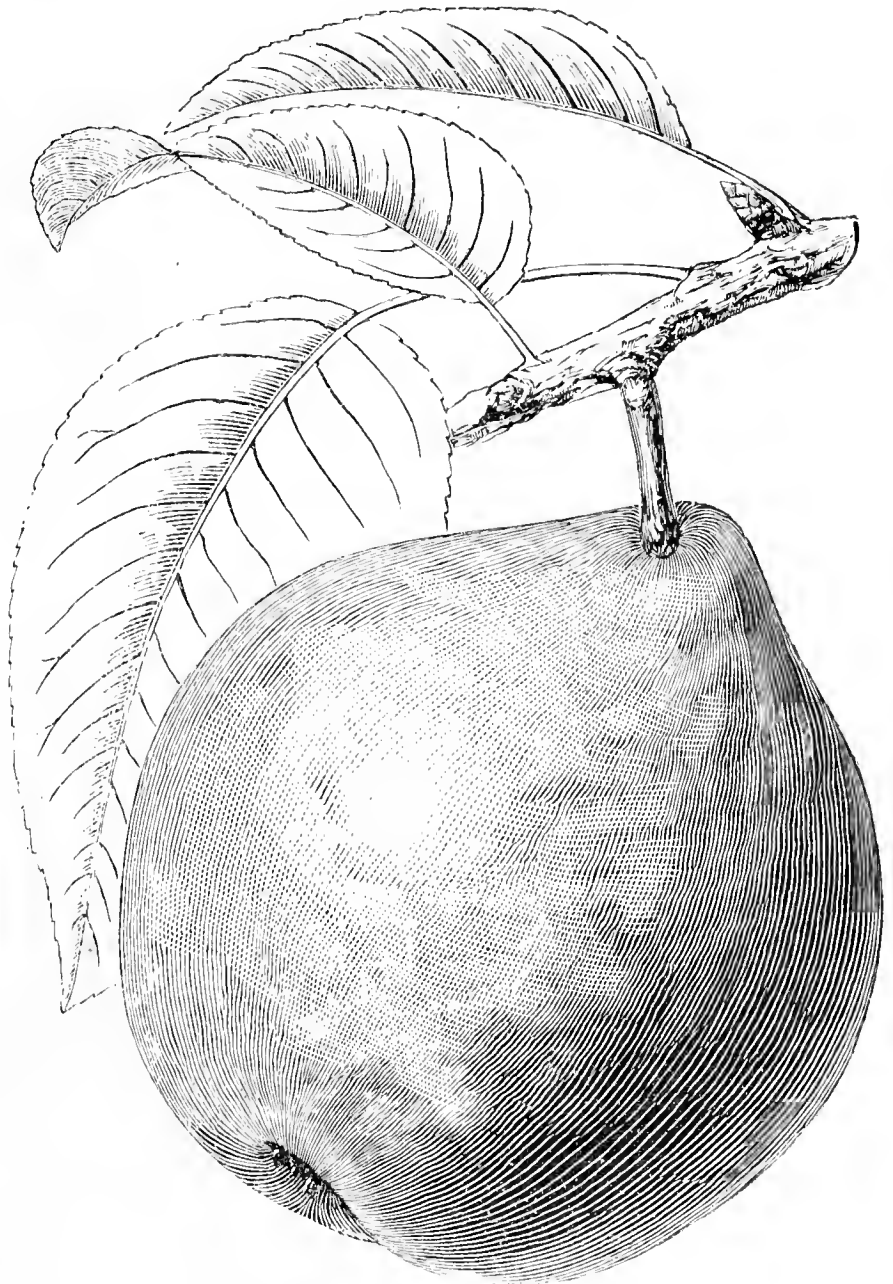


FIG. 6.—PEAR MARIE BENOIST.

Defays, Beurré Diel, Pitmaston Duchess, Gen. Todleben, another good late Pear of high quality; Beurré Lambard, good late variety; Glou Morceau, late; Prévost, one of the best December Pears; Bergamot d'Esperen, and Zéphirin Grégoire. Standard Pears included Marie Benoist, Passe Colmar, Gratioli of Jersey, Beurré d'Amanlis, Beurré Bachelier, Uvedale's St. Germain, Vicar of Winkfield, and Catillac. The last three named are specially good as standards, but are even finer on the wall.

There was also a fine collection of Apples; indeed, there are very few places in the county where there is a better collection, or even better grown, a few as bushes; but the generality as standards. As bushes we noticed Irish Peach, Worcester Pearmain, Red Astrachan, Kerry Pippin, King of the Pippins, Court Pendu Plat; and as standards Bramley's Seedling, Beauty of Kent, Newton Wonder, Flanders Pippin, Charles' Pearmain, Devonshire Quarrenden, New Hawthornden, Minshall Crab and Winter Queening. The collection of Plums was also equal to the Apples and Pears, and contained the best and leading sorts. In the kitchen garden there were good squares of Gooseberries and Currants, and well managed plantations of Strawberries. On a south border the first pickings of Scarlet Queen are ready in May.

On the outside of the kitchen garden is the nursery, where forest trees are propagated and prepared for planting in the various plantations on the different farms, and stocks for fruit trees are also raised and in due time grafted with the best and leading sorts only. Such Apples as are only second rate are headed down and grafted with the best sorts known. Amongst these were Prince Albert, Golden Noble, Lord

Grosvenor, Newton Wonder, Nonesuch, and Bismarck. On the nursery wall there was a fine arrangement of Pears, all trained horizontally, and each year carry good crops of fruit. The sorts include many of those named above. A little distance from the gardens and adjoining the Plum orchard was a vinery 45 feet long, and containing twenty Vines of the leading sorts. The Vines, like all the other fruit-bearing trees, were in excellent order, and bore traces of skilful cultivation.

Although the gardens at Rochford House are not so extensive as some others that we have visited in the county, yet they afforded us a vast amount of pleasure and instruction. We cannot close these brief notes without expressing our deep obligation to Mr. Paintin, and the gratification our short visit yielded us.—QUINTIN READ, *Ev-sh'm*.

LUCULIA GRATISSIMA.

How is it this charming plant is not more generally grown? For covering bare walls in cool greenhouses or conservatories it has no equal. Many people, however, make a mistake in attempting to grow it in too high a temperature.

In the gardens of the Rev. H. G. Jebb, Firbeck Hall, Rotherham, there is a fine plant at present in bloom, which for the number and the size of its trusses I have not seen surpassed. Mr. Egglestone, the gardener, informed me on the day of my visit that there were upwards of 500 heads of bloom fully expanded. A medium-sized truss that I have now before me has sixty-four of its sweetly scented, pale pink flowers fully open. Blooming as it does at this dull season makes it doubly welcome, and is justly appreciated by all who have had the privilege of seeing it.

The Firbeck specimen is planted out in the conservatory in one corner of the centre bed, and is being trained over part of the roof, a position that suits it admirably, forming quite a canopy of flowers overhead. This plant should be more generally grown, as it is of easy culture.—S

HORTICULTURAL EXHIBITORS AND RAILWAY FARES.

AN erroneous impression seems to exist as to the privileges granted to exhibitors here in Ireland. The statement made by "M. W." is quoted again in last week's Journal by "T. H., Bristol." As an exhibitor I have been making inquiry into this matter, and with one exception the railway companies having termini in Dublin do not give any facility whatever to exhibitors. I am well acquainted with exhibitors attending the shows of the Royal Horticultural Society of Ireland, and they inform me that they never yet got such a privilege as stated by "M. W." The exception referred to is the Great Northern Railway, between Dublin and Belfast.

Exhibitors from Dublin and further south at the late Chrysanthemum show in Belfast, on sending in their entries to the Secretary received in return a signed railway voucher, which on being presented at the railway ticket office and paying single fare a ticket was obtained for the double journey. Show boxes were all carried free. Compare this generous treatment with that of the Dublin, Wicklow, and Wexford Railway, where a friend and I in our journey to Belfast had to travel four miles over their system, and in addition to paying full fare were also charged 1s. each for the single journey for carriage of our boxes. Railway travelling in Ireland is a more expensive luxury than in either England or Scotland, and the agitation for cheaper rates for exhibitors is just as necessary here as in other places.—J. H. CUMMING, *St. Helens Gardens, Booterstown, Dublin*.

WINTER FLOWERS AT HINDLIP HALL.

THE demand for cut flowers and decorative plants for winter work at Hindlip Hall, Worcester, is great, but Mr. H. Russell, the gardener in chief, is equal for the occasion. It was a dull cold miserable wet day when I recently visited this well-kept place, but I forgot all about the weather when I was going through the houses, for an imposing display of winter flowers met the eye everywhere.

A house is devoted to the culture of tree Carnations, producing dozens of flowers, of which Winter Cheer seemed to be a favourite, and deservedly so, for it is one of the best scarlets for winter work as seen here, plants in 32-pots producing fine crops of flowers. Many other varieties are grown, including the Malmaison section, which promises well, and a succession of flowers will be forthcoming for a long time. There is a house of Cyclamens containing about 300 well-grown plants in 6-inch pots, many of which have fully four dozen expanded flowers and an innumerable quantity of buds thrown well above the beautifully marbled foliage. Sutton's Butterfly, one of the very best whites, is in strong evidence, likewise all the varieties of Sutton's Gigantic strain.

Poinsettias are remarkably well grown. The plants were dwarf, about 15 inches high, and well clothed with foliage to the pots (5-inch). The bright scarlet bracts measure fully 18 inches across, and are superb for decoration work. A house of Bouvardias in 6-inch pots, fully 2½ to 3 feet through, are invaluable for cutting from, and I was very pleased to see a fine collection of yellow Wallflowers in pots, flowering as profusely as one could wish; the variety is Sutton's Earliest of All. These were lifted from the open ground in October, and they have the appearance of flowering for at least a month to come. The habit is dwarf and compact; the plants referred to are about a foot high,

rendering the variety worthy the attention of those wanting sweet-scented flowers during the winter months for decorative purposes. Chrysanthemums, of which all the leading varieties are grown for decorative work; although somewhat late in the season, many still remain that would do credit to any exhibition. Houses are devoted also to decorative foliage plants; all the leading Palms, Dracænas, Crotons, and Ferns are grown in great quantities and various sizes. The Crotons and Dracænas are beautifully coloured.

In the fruit houses I noticed fine crops of Grapes yet remaining, fit to adorn the table of the most fastidious. Muscat of Alexandria, fine in colour, plump in berry, and good bunches; Lady Downe's, both white and black, the former not often seen, it is grand here, and a good flavour; and other varieties equally well done. The early Peach house and vineries have been started, and look promising. If cleanliness and good order can assist the future prospects, it is in strong evidence in this well-kept place, the credit of which is due to Mr. H. Russell, who has had charge here now some few years, and whose work proclaims for him the title of a well-skilled and enthusiastic gardener.—URBANUS.

A TRIP TO THE DISMAL SWAMP.

THE large tract of inundated lowland in south-eastern Virginia known as the Dismal Swamp possesses an interest to workers in all branches of science from the fact that it is the first or most northern great series of coastal swamps extending from Norfolk southward for many miles. To the botanist such an area furnishes valuable opportunities for the study of geographical distribution and of habitat, and mainly with this object in view I made the expedition to the swamp last May in company with a geologist and two ornithologists. The accompanying notes on the flora of the region are the outcome of only two days' sojourn in the swamp itself.

In many parts of the area under consideration the term "dismal" is a misnomer, as the trees are not of sufficient size and density to exclude the sunlight altogether, or even to give that appearance of gloom afforded by the coniferous forests of the north. In the interior, however, especially around Lake Drummond, certain trees, such as *Acer rubrum* and *Nyssa biflora*, attain a very great height. The majority of the remaining trees, like *Magnolia glauca* and *Quercus nigra*, do not exceed, for the most part, 20 or 30 feet. The last two species, in company with several Ericaceous shrubs and the Hollies, *Ilex glabra* and *I. opaca*, when intertwined with the numerous woody vines that abound in the swamp, constitute an impenetrable jungle which defies even superficial investigation unless exploring botanists are armed with bush knives.

While paddling up the Jericho Canal from Suffolk in a dug-out we noted several well-marked areas in which some one of these dominant species seemed to flourish at the expense of the others. Along the side of the canal for the first few miles soil thrown out in the construction of the ditch forms a moderately firm bank, along which is a good towpath. Here the Cane grows rather sparsely, but there are numerous trees apparently not found in the interior, notably *Aralia spinosa*, *Sassafras*, *Rhus copallina*, and several Oaks. A few introduced weeds, including the ubiquitous English Daisy, are scattered along the bank.

A few miles farther we notice a gradual subsidence of the embankment, the soil becomes more moist, and the Cane grows in dense brakes, overarched the canal and effectively smothering the smaller herbaceous vegetation. Soon the water of the surrounding swamp is seen to merge with that of the ditch, and the Cane, finding no anchorage for its tough, ligneous root-stocks, disappears almost completely, its place being taken by masses of *Woodwardia*, which grow in from 1 to 2 feet of water, and whose fronds attain enormous dimensions. Around the roots of shrubs a quantity of *Sphagnum* lodges, mingled with decaying sticks and herbage, thus affording conditions favourable to the growth of such plants as *Pogonia ophioglossoides*, *Limnium tuberosum*, *Mitchella repens*, *Impatiens*, and even *Gaultheria procumbens*, the flavour of the winterberries borne by the latter being fully equal to that of specimens from a mountain woodland farther north.

As one nears the end of the canal, shrubs and trees become thicker, and the Cane is again abundant. *Similax laurifolia* and *S. rotundifolia* festoon the lower branches of the trees, while the Supplejack, *Berchemia*, the Fox Grape and the Cross Vine, *Bignonia capreolata*, strive for the possession of the lofty trunks. Fallen logs float on the surface of the water and become converted into veritable moss gardens, among which *Polypodium polypodioides* thrives.

The Bald Cypress, *Taxodium distichum*, is apparently less abundant in the swamp than formerly, and of the specimens observed by our party the majority were young. Lake Drummond is full of Cypress-stumps, indicating that a large number of these trees once grew within its area. The peculiarity exhibited by this species of forming enlarged butts, or elbows, often in connected series, is observable to less extent in most of the arborescent vegetation. The knees attain greater proportions in the Cypress, however, and seem to be designed to obviate rapid decay and to anchor the plant firmly in the depth of water that it prefers.

Lake Drummond, a sheet several miles in diameter, is the centering point of the various canals and ditches penetrating the swamp. Apparently its waters nowhere exceed 10 feet in depth, except during the period of overflow in the spring. Around its margins lie, perhaps, the most densely wooded portions of the swamp, and innumerable stumps and tree-trunks, still standing erect in the water, tell the tale of a forest that once covered much of the present surface of the lake.

Several interesting additions to the flora of the Dismal Swamp have been detected of late. Dr. Britton and Mr. Hollick found *Andromeda nitida* during an autumn trip to the swamp several years ago. Within the last two seasons Dr. A. K. Fisher has collected *Ilex lucida*, and I have found *Clematis crispa* in considerable quantity. It is very certain that a well-equipped botanical expedition would find much of interest in the still unexplored parts of this peculiar region.—CHARLES L. POLLARD (in "Garden and Forest.")

THE YOUNG GARDENERS' DOMAIN.

A GOOD BEGINNING.

DEAR "Old Boy," your appeal in the "Young Gardeners' Domain" shall not be in vain. In respect to the Gardeners' Royal Benevolent Institution I do not know the details; perhaps the Editor will kindly supply them. Come on, my comrades of fire-shovel and water-can. Let us rally round our old friend, and show him that we do practically appreciate the interest he has taken in our welfare. Perhaps it is only a start, so if it is within the limits of a journeyman's means I shall be pleased to be a member.—G. R. B.

[The heading is ours. Mr. G. J. Ingram, Secretary of the R.G.B.I., 50, Parliament Street, Westminster, will send the peroration to our correspondent by post.]

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

It is to be hoped many gardeners both young and old will be induced by the kind remarks of "An Old Boy" to become members or subscribers to this noble Institution. Every gardener in the United Kingdom ought to have his name on its rolls to further its benevolent object—the relief of those in distress, or, if incapacitated from work after reaching the age of sixty, if they comply with the rules, or younger men in cases of total disability, are eligible for pensions. It is with pleasure I inform our friend that I have during this last year been enabled to make myself a life member of the Institution, and still hope to be able to do some good in furthering its claims for financial support; likewise the sister Institution—the Royal Gardeners' Orphan Fund, of which I hope to become also a life member. I have for some time been a subscriber, "if indirectly." I conclude by wishing "An Old Boy" a happy and prosperous new year. He has for some time been contributing to my weekly happiness, and I am looking for more.—J. S. G.

[Our correspondent, who is an under gardener, is to be congratulated on his thoughtfulness, thrift, and prudence. He has the privilege of serving under one of Nature's noblemen, whose good example has been followed.]

CALANTHES.

WHERE there is a demand for cut flowers at Christmas I know of nothing more valuable than the following varieties of *Calanthes*—viz., *Veitchi*, *vestita alba* and *rubra*. They should be shaken out of the old soil every season, and repotted during the month of March in the ordinary way, and not elevated above the rim, in a compost of two parts loam, one part peat, and one part leaf mould, adding a little dried cow manure and a dash of sharp sand. Three bulbs may be grown in a 6-inch pot or one in a 4-inch. When potted they may be placed on a shelf near the glass in a temperature of 60° to 65°. They will need very careful watering for some time after they are potted. When the pots become full of roots weak liquid manure water is essential. These plants lose most of their foliage by the time they flower, which causes rather an unsightly appearance. To obviate this they may be arranged among other foliage plants, or small Ferns (sporelings) should be pricked in between the pseudo-bulbs, which will be a great relief to the bare stems.—AN ENGLISHMAN IN SCOTLAND.

[Little and good; only one small correction needed.]

MALMAISON CARNATIONS.

I THINK "J. F. D.'s" suggestion (page 594) re "Winter Flowering Plants," a very good one. One plant I would like to bring to notice for a winter flowering one is the noble Malmaison Carnation. At what season of the year is such a flower more appreciated, coming in at Osberton just before Christmas, a batch of 400, in 10-inch pots, eight to ten blooms on a plant? Not only as a winter flowering plant would I refer to this, but also as one capable of being flowered twice in one year, as all these plants were flowered in the months of June and July last. I may also say this has all been attained under a treatment put down as fatal by some growers. I mean the syringing of the plants, a treatment Mr. Crisp advocates strongly, and there is no doubt about their liking it. There is no sign of disease, and the dark healthy broad foliage hangs over the rim of the pot. The plants are 2 feet high, and about 2 feet across. Anyone doubting the syringing system cannot do better than "come and see," as our worthy friend, Mr. Cannell of Swanley, would say.—A. C. W., *Osberton Gardens*.

[A few other excellent articles are crowded out, but they will lose nothing by keeping.]

R.H.S. EXAMINATION.

WITH your kind permission, Mr. Editor, I would like to offer one or two remarks on the above subject. I will say at the commencement that I quite approve of examinations, at the same time agree with the

remarks of "Young Gardener" on the subject. Having been a candidate at the last exam I always read anything connected with it with very deep interest. Especially so did I read the short note by "A. D." (p. 155) in which he speaks of a railway porter who passed an excellent exam. To Mr. Walker (for that is his name) "all honour is due." Strange to say, this gentleman stood before me in the exam.

I must confess I feel utterly ashamed of myself, having spent sixteen years in well-managed gardens under some of the best gardeners in the country. I must have made bad use of my time. I have held my present position as second in a garden of large dimensions for more than four years, having twenty-five glass houses more or less under my charge, containing a varied collection of fruits and plants in general cultivation. I only managed to reach the "third class."

I must say again, as I have said before, that these examinations are not a fair test of a gardener's ability. It may be from the scientific point of view, which many young men in out-of-the-way gardens can only rarely get by self-study. It must be admitted that it takes a great deal of practice to make the scientist "perfect." Any sensible person knows what a few months cramming or coaching will do, though it requires many years of work to become "practical," without which no man in a garden of any extent can acquire the knowledge of the many and varied duties to be performed for the successful management of the several departments.

It is utterly impossible to obtain the desired results in the high-class cultivation of fruits, flowers, and vegetables without diligence, care, and thought, combined with the most important point—"practice." This must be very plain to see when we consider what gardening was and is to-day. The great improvements brought about each year by experience—I am speaking from personal experience—that each year's practice gives additional confidence in the operations which only occur perhaps once in the year.

It has been remarked that many leading pillars of horticulture at the present day have spent a great portion of their lives at other occupations. I would ask, Are these men now thoroughly practical? I admit it is wise and prudent to be well equipped—possessing a first-class certificate if possible, but more easily, and perhaps more certainly, a second or third. These latter may be and are won by many, who of course, it is understood, are in no way qualified to take up the position of head gardener.

It seems strange so few young gardeners enter these exams from the northern parts of the kingdom. "There must be a reason." What is it?—SUBORDINATE.

[Our correspondent writes very well, and no doubt works very well. Perhaps he was nervous in the exam. "Science is a bright light that guides the way, but the path itself is practice."]

THE following questions, with answers appended, are written to give young gardeners and students of horticulture some idea of what the R.H.S. examination is like. The time each question took to answer is given at the end of each answer. I shall take eight questions from the paper set last year by the R.H.S., not in the order in which they come, but the easier to answer by the writer taken first, leaving the more difficult ones till later.

Question 3.—"Of the elements and compounds that go to make up the constitution of plants, a few occur in much larger proportions than others. Which are they, and whence are they obtained?"

The elements and compounds that go to make up the constitution of plants, and which occur in the largest proportions, are as follows:—Elements—Carbon, oxygen, and nitrogen. Compounds—Potash, phosphoric acid, and lime. The carbon and part of the oxygen are obtained from the carbonic acid gas in the atmosphere, while the remaining oxygen, together with the nitrogen, potash, phosphoric acid, and lime are taken from the soil. Time, six minutes.

Question 1.—"What are the objects sought to be obtained by digging the soil? Of what use is it to crops?"

The objects sought for in digging soils are as follows:—1, To loosen and break them, so as to allow water and air to penetrate more readily. 2, To bring the soil into a finer state of division by exposing fresh surfaces to the action of air, water, frost, &c.; and 3, To bury weeds, or to mix manure with the soil.

Its use to crops is:—1, To enable the roots to penetrate the soil more readily in search of food, and also to allow oxygen to reach them (the roots), without which they could not live. 2, To enable the carbonic acid and oxygen gases from the atmosphere to attack the inert plant food in the soil, and make it more available for crops. Time, twelve minutes.

Question 4.—"What are the 'reserve materials' of plants? Where are they stored? What use is made of them?"

(a), The reserve materials of plants are those portions of organised or constructed food substances which are stored up in some parts of the plant for its future use. They consist of the following:—(1) carbohydrates, (2) fats, (3) proteids, (4) amides.

(b), The carbohydrates are found in a variety of forms, (1) as starch in some seeds and tubers; (2) as cellulose in the thickened portion of some cell walls—e.g., the Date seed; (3) as Grape sugar in some fruits—e.g., Grape Vine; (4) as cane sugar in some roots and stems—e.g., sugar beet, and sugar cane; (5) as inulin in some roots—e.g., Dahlia roots.

The fats are found in many seeds (e.g., Flax, Cocoa-nut, &c.), and also in the cells of many plants.

The proteids are found in a variety of forms in all seeds, and in tubers, bulbs, and all parts of plants.

The amides are present in some seeds, and in the cells of many plants.

(c), The reserve materials are of use to seeds and plants, to supply them with the substances necessary to build up their growth until they have leaves expanded, when they are able to construct new food from the raw materials which are derived from the soil and air. Time, thirty minutes.

Question 9.—“What are the main differences between the ‘seed’ of a flowering plant and the ‘spore’ of a fungus?”

A seed consists of several parts. On the outside there is a skin (testa) to protect the embryonic plant within. The tiny plantlet consists of a primary root (radicle), a primary stem (plumule), one or more seed leaves (cotyledons), and sometimes a store of food. The seed is therefore in all respects a miniature plant. The spore of a fungus is like a seed—a reproductive body—but it differs from a seed of a flowering plant, because it does not contain any embryo or rudimentary plant. Time, twenty minutes.—A STUDENT.

(To be continued.)

[Lest it should be thought our correspondent is merely a book hunter, it may be said that he is a most industrious worker. We have had the pleasure of a handshake with the young gardener, and found it hard by honourable toil. He is neither afraid of fork, spade, nor barrow, and we suspect is destined to make his way in the world if health do not fail him.]



FRUIT FORCING.

Cherry House.—When the trees in the house closed in December are fairly on the move, let the day temperature be kept at 50° to 55°, and if the days are bright air should be admitted, but only to the extent of keeping it from rising above 65°, commencing to ventilate at 50°, increasing it at 55°, above which a free circulation of air must be allowed, and when the temperature declines to 55° close the house for the day. The night temperature should still be kept at 40° to 45° artificially. Syringe the trees in the morning and early afternoon on bright days, but if the weather be dull it will suffice if the borders and other surfaces are damped whenever they become dry. Examine the borders, supplying water if necessary, moistening them thoroughly, the water not being less in temperature than that of the house. Trees in pots must be well supplied with water, repeating the supplies as necessary to insure thorough moisture in the soil.

Cucumbers.—The sun and the mild weather at the close of last year have helped winter fruiterers wonderfully, a little ventilation in the early part of the day when the weather was mild aiding by evaporation to solidify the growth, and closing early in the afternoon or shortly after midday, with damping the house at that time, insuring steady progressive development in growth of plant and fruit. On fine mornings the floors should be damped and the plants lightly syringed, which discourages red spider, and to some extent holds the pests in check. Weak liquid manure may be given to plants in free growth, but should the plants not show signs of growing freely sprinkle a little—about a good handful—of a mixture of dissolved bones and soot in equal parts on the bed, and water moderately with tepid water only until the growth becomes free. To encourage surface roots a top-dressing should be given of turfy loam, from the size of a pea to an egg, adding a fourth of sweetened horse droppings, having it previously warmed to the temperature of the house. Maintain the night temperature at 65°, a few degrees less in severe and a few degrees more in mild weather, 70° to 75° by day, and 80° to 85° or 90° with sun heat, keeping the bottom heat steady at 80°.

Plants for the early supply of fruit where winter Cucumbers are not grown should now be prepared, sowing the seeds singly in 3-inch pots, leaving room for top-dressing when required by about half filling the pots, plunging these in a bottom heat of 85° to 90° near the glass. The plants will be available for planting in houses, pits, or frames. All points considered, there is no better variety than a selected stock of Telegraph, but there are numberless varieties of great excellence, each grower having his particular favourite, and often of his own raising or selection.

Figs.—*Early Forced Trees in Pots.*—The terminal buds having started advantage should be taken of mild weather that may prevail for increasing the mean temperature of the house, as when Figs are fairly started into growth they delight in a good heat, plenty of moisture, and all the light that can possibly be given them, admitting air so as to prevent the glass being constantly covered with moisture; but seek increase of temperature from fire heat combined with sun heat in preference to maintaining a temperature in dull weather, and especially at night, that will cause any great advance in growth at those times. Maintain a night temperature of 55° to 60°, ventilate a little at 70°, losing no opportunity of admitting a little air when the morning promises an increase from gleams of sun, and close sufficiently early

for the temperature to run up to 80°. Syringe the trees and damp the walls twice on fine days, morning and early afternoon; but when the weather is dull and wet omit the latter and damp the floors in the evening instead, as the trees are weakened and the foliage made soft by keeping them wet during the night, therefore always allow the trees to become fairly dry before nightfall. Be careful not to permit the heat about the pots to exceed 70° to 75°, and if the materials are heating too violently turn them as a means of reducing the bottom heat, but it ought to be kept steady.

Early House of Planted-out Trees.—This is an excellent means of securing the finest Figs early in June, the trees being confined to narrow borders about one-third the width of the house, and the soil a calcareous loam on a stratum of limestone or sandstone, so as to insure perfect drainage with superfluous water carried off by a drain. Maintain a night temperature of 50°, 55° by day, and 60° to 65° from sun heat. If conveniently arranged for the introduction of a good body of fermenting materials, as leaves and one-third of stable litter, the atmosphere will be kept uniformly moist and genial, lessening the need of fire heat. Trees that have been started about the same time for a number of years push growths with little excitement; but young trees that have not been forced start tardily, and are often given more heat in the early stages than is good for the crop. This should be avoided by bringing on the trees slowly, seeking advancement from sun heat more than artificial in dull weather. Apply water to the border not less warm than the mean of the house, bringing the soil into a thoroughly moist condition. Syringe twice a day with tepid water a little warmer than the house; but in dull weather damp available surfaces only, syringing always sufficiently early to allow the trees to become dry, or nearly so, before nightfall.

Succession Houses.—Proceed with pruning as convenient, thinning the wood where crowded, cutting back that which has reached the extremity of the trellis to growths well disposed for supplanting the branches cut away in bearing. Thoroughly cleanse the house, limewash the walls, wash the trees with carbolic or petroleum soapy water, using a brush, and the trees having been infested with scale or red spider, employ the soapy solution at a strength of 4 ozs. to a gallon of water. It is necessary to dislodge the scale, effecting that by using a half-worn brush thoroughly cleansed from paint. Remove the loose surface soil or mulching, and supply fresh lumpy loam with sprinkling of approved fertiliser. Keep the house as cool and dry as possible, merely excluding frost, or not allowing the temperature to fall many degrees below freezing point.

Young Trees in Pots.—If these are wanted for early work another season the plants should be placed in gentle heat during this month in order that they may make and properly ripen their growth by September. They must be potted without delay, using good turfy loam rather strong, with a fourth of old mortar rubbish and a fifth of thoroughly decayed cow manure, draining efficiently, and potting firmly. Train the plants with a single stem, and allow the radiating branches to form the foundation of a good bush or pyramid. Insert cuttings or eyes of any varieties it is desired to increase, and in order to make a good growth they should be encouraged with bottom heat, and started not later than the beginning of February.

PLANT HOUSES.

Loam.—If a large stock has not been wheeled under cover, no time should be lost in doing so, to have it in good condition for use when required. As opportunity offers it should be pulled to pieces and the worms removed. As this work proceeds it is a wise plan to select the most fibrous portions, and store for choice plants that need a compost of this nature. This is readily accomplished by the aid of an inch sieve. That which passes through should be again placed in a finer sieve, and the particles that pass through reserved for seeds, seedlings, cuttings, and small plants where a rough compost would prove unsuitable and out of place. It is surprising when a large amount of loam is prepared for use in this manner how quickly the work of potting, filling pans and boxes for seeds and cuttings can be carried on. It is a mistake to leave work of this nature until the busy season of the year.

Leaf Mould.—The amount required for use during the spring months should also be under cover, ready for preparation during unfavourable weather. This undergoes a similar process to the loam, differing only in being passed through a sieve with a half-inch mesh. A heap of rough material may also be prepared by breaking it up with a fork, removing the finest particles by the aid of a sieve, sticks also being carefully picked out. This rough heap, when cleaned, will be found useful for placing over the drainage of many plants, and incorporating with composts that are required as rough as possible. Our leaf mould is never stacked or used for potting purposes when too much decomposed. We prefer it when the fibre of the leaves is still perfectly fresh, which will be the case if the leaves have not laid more than 1 foot in depth, and are fully exposed.

Peat.—Sort this into three classes, that with the most fibre being reserved for Orchids, the hardest for Azaleas, Heaths, and other hard-wooded plants, while the lightest will do for Ferns. For the two latter it should simply be broken up with the hand, and Fern roots, pieces of wood, and strong roots of Heaths removed; while that required for Orchids should have all the particles of soil shaken out of it, which will be useful for many small Ferns, Mosses, and other plants.

Manure.—When much potting has to be done at various times of the year it is necessary to wheel into a shed good heaps of manure in

autumn and at the present time. The autumn supply consisted of cow manure, from which the straw was shaken out, and horse droppings. The former, if moderately dry when stored, will rub easily through a half-inch sieve. It is useless to sift it if not dry enough, for if laid thickly together the labour of sifting would be wasted. If not sufficiently dry place it in boxes or flat hampers for a few days in the boiler house or other position to dry. Be careful that it is not baked, for this evil is as bad as sifting it when too wet. The horse droppings should be in good condition for passing through a sieve. The preparation of manure for potting is important; it cannot well be too finely divided for incorporating with other adhesive ingredients. If it is wet and adhesive it renders a compost with which it may be mixed unsuitable for use. Cow manure may be stored twelve months previous to being used when perfectly fresh. Our plan is to place it in an old shed and surround it with dry loam to soak up all the liquid that runs from it. This loam is equal to manure for many plants afterwards. As it is removed from the manure heap it is mixed with equal quantities of dry loam and a fresh supply placed round the heap of manure. No waste takes place by this method, and the loam that has been soaked with manure will be found invaluable for *Richardias*, *Chrysanthemums*, and plants of a similar nature.

Artificial Manures.—The stock required for the year's supply should be ordered, so that it will be ready for use when required. Amongst these may be included half and quarter-inch bones with the fine left in, as well as a supply of meal. A box or barrel of soot should also be placed handy for use, and a few barrowfuls of wood ashes. Very few plants dislike the two latter, and either may be beneficially used in the majority of composts where loam, leaf mould, and manure are mainly employed.

Sand.—If the supply of the former is not equal to what will be required no time should be lost in getting in the necessary quantity. For mixing with composts it is much better dry than wet, especially early in the season when other ingredients have a tendency to be moist.

Pots and Crocks.—The former should all be washed ready for use where they are not cleaned as they are emptied and stored away in their sizes. The crocks must be thoroughly washed; this is as important as using clean pots. The drainage of many plants is rendered untimely defective by the use of dirty crocks. When washed and dry sort and break them into various sizes ready for use, and place them separately. This is quickly done by the aid of sieves, except the largest or two largest sizes, and this can be selected during the process of breaking, and should be placed on one side first.

Labels and Stakes.—The first we have long since discontinued making, for they can now be purchased so cheaply. The necessary quantity should be ordered ready for use, and relabelling can be done as far as possible. It is a mistake to leave it until the different plants require potting, as is too frequently the case. Repoint stakes and tie them in sizes, it can then be seen what sizes and the quantity that will be needed. These, if bought, should be placed in early so that they can be pointed. Small stakes for a variety of purposes are generally in demand, and for this purpose large Bamboos are bought, cut into lengths, and split; the sharp edges are merely taken off with a knife, and the stakes pointed at one end.

Boxes.—Some will decay, and to keep a good stock in condition for use a few should be made annually. We use common floor boards 6 inches wide. The ends and sides only want sawing into lengths. The bottoms are soon nailed on if the width is such that two or three boards without sawing will cover it. For three boards placed lengthways the boxes should be 19 inches wide, which will allow two half-inch spaces for drainage. If shallow boxes only are needed the boards may be sawed straight down the centre. Boxes last half as long again when thoroughly painted inside and out before they are used.

SPINACH.—An interesting bulletin prepared by Mr. L. F. Kinney of the Rhode Island Experiment Station, treats of Spinach with a description of the most approved methods of culture at the present day, the protection of plants against mildews and leaf-miners and various other interesting points. In the matter of classification, four types of true Spinach which have originated from the natural species, *Spinacea oleracea*, are considered. The first of these is the Norfolk or Bloomsdale variety, which makes a vase-formed, thick-leaved plant, with leaves supported by stalks instead of resting on the ground. This type is not popular among the large growers because it goes to seed early, and yet it is unsurpassed in quality when harvested at the right time. The Round-leaved Spinach is the second type, and it makes a compact round plant with dark green, slow growing leaves formed close to the ground. The third type is the Thick-leaved Spinach, which has the ends of the leaves pointed. It grows to a large size very rapidly. The Prickly-seed Spinach has leaves with long, slender stalks and narrow blades, and is not planted in the north as much as it deserves. The so-called New Zealand Spinach is botanically *Tetragonia expansa*, which, when properly cooked, makes a good substitute for Spinach, and can be grown during the hot summer months, when it is impracticable to grow the true Spinach. The Mountain Spinach, or Garden Orache, is botanically *Atriplex hortensis*, and none of its forms has much to recommend it. Spinach has been cultivated for a thousand years, but it was not grown in European gardens until the fifteenth or sixteenth century, and the greatest progress in its cultivation has been made within the last fifty years.—("Garden and Forest.")

THE BEE-KEEPER.

HIVES WITH TEN STANDARD FRAMES.

I HAIL with pleasure the remarks of George Howdenshire (page 618) on this subject. He says, "Is a hive with ten standard frames large enough?" and have no hesitation in saying it is not.

At this season, when all is quiet in the apiary, a discussion between practical bee-keepers will be beneficial to all who are anxious to improve, as far as is possible, on the various methods of bee management. I take it for granted that the chief aim of bee-keepers is to obtain a rich harvest of honey; the fertilisation of their own and neighbours' fruit trees when in bloom being only a secondary consideration.

How is this to be done? Will bees store more honey in a hive holding ten standard frames, which in due course at the proper season has another hive of the same dimensions placed on the top and holding the same number of frames, or a hive holding twenty frames of the same size? I have experimented, not once but dozens of times, with hives of the above dimensions, and whether it has been for weight or quality of honey, or ease in manipulation, I must own to having a strong liking for the former. Your correspondent has not carefully read my previous notes on this subject, or he would not have propounded the above query.

I prefer a hive with sufficient space for ten standard frames, because a strong colony of bees will store sufficient (whether it be honey or sugar) for their requirements until a limited quantity is obtained from the early spring flowers. I fail to see the advantage derived from allowing 100 lbs. of honey to remain in the body of the hive, and twelve frames, at least, of sealed-up stores would not be beneficial to the bees. Again, if looked at from the profitable side of bee-keeping, my wholesale price of honey obtained during the past season was 7d. per lb.; granulated sugar for autumn feeding cost less than 2d. per lb.

If no other reason were forthcoming, this is sufficient, when profit and loss is taken into account, to prove that it is not wise to allow a large surplus of honey to remain in the hives during the winter. If a rapid feeder is used, and the bees are fed early in the autumn, a strong colony will carry down sufficient syrup in forty-eight hours to provide for all their wants until the following spring. I never under any pretence extract honey from the body of the hive; and if a large hive is used, brood will be found in nearly all the frames by the time the white Clover is in bloom. This may be prevented, if run honey is required, by placing a sheet of queen excluder zinc between the frames. If comb honey is required this is not necessary, as a strong colony will readily work in sections.

Bees will always store honey more freely in supers (whether they are frames or sections) when placed directly over the brood nest than if placed on the same level in the body of the hive. Run, or extracted honey, is so much superior when obtained from supers free from brood and pollen, and in no other form have I been able to procure so good a sample as from

THE DOUBLING SYSTEM.

In advocating a ten-frame hive I will state how I obtain as much bee room as those who favour much larger hives. If bees are confined to only ten frames the space is too limited to obtain a surplus, and instead of gathering honey they will in all probability have the swarming mania, and by the time they have settled down to work the honey flow will be over.

The secret of the successful management of bees is in doing the necessary work at the right time, not leaving until to-morrow, or it may be next week, what ought to be done to-day. If the hives are numbered (as they always should be), and a note made of the age of the queens, select those stocks having a young fertile queen hatched the previous season. It will take about six weeks to build up a colony of sufficient strength to take full advantage of the honey flow. Our chief aim is to obtain as much honey as possible from the white Clover, which is usually in bloom in this locality (South Yorkshire) from the middle of June to the middle of July, lasting a little over three weeks.

If we could command bright days and warm nights the whole of that time a strong colony in a good Clover district would, I have no doubt, store the 250 lbs. that "G. H." wants but probably does not often get. By the first week in June, if the selected stocks have done well, each will be overflowing with bees. The first hive to be operated on should then be examined, a fine day being chosen when the bees are busy working. Lift out the frame; until the queen is found, and place the frame containing the queen on one side. Remove four or five of the frames from the centre of the brood nest, and replace with fully drawn out combs or full

sheets of foundation, the comb containing the queen and adhering bees being replaced in the hive. A sheet of queen excluder zinc should then be placed over the top of the frames; this will keep the queen and drones in the bottom hive.

Another hive the same size is then placed on the top and filled with empty comb, and the frames with adhering bees previously removed from the brood nest. If not of sufficient strength some frames of brood and the adhering bees may be taken from other stocks which are headed by old queens, care being taken that the queen is not removed.

The bees on these combs, if placed alternately with the others, will settle down as one happy family. Nine frames will be sufficient in the top storey, as this will allow the cells to be drawn out longer than they otherwise would, and more honey will be stored. All intended for extracting purposes may be treated in the same manner, those that are weak being made strong from the stocks having old queens, and from which young queens will be reared for another season.

It will thus be seen that colonies treated as above will be of great strength owing to the thousands of young bees that will be hatched before the honey flow comes, ready to take advantage of the first fine day that comes, thus showing that the maxim is true in bee-keeping as in many other things, "Unity is strength."—AN ENGLISH BEE-KEEPER.

AN ENGLISH BEE-KEEPER AT HOME.

DURING the summer of 1896 an opportunity occurred of paying a visit to "An English Bee-keeper" at home, when we were able to enter closely into his system of management. We did so, and found it excellent; we also examined the results and found them pecuniarily highly gratifying.

We do not wish to infer that his system of bee-keeping is the only one that can be profitably followed—not in the least, as we know of other experts who have achieved good results by different methods of management. We do, however, know that the lines followed by "An English Bee-keeper," and which he so lucidly explains week by week in these columns, are sound, and may safely be adopted by the beginner, and probably also by some who may have followed bee-keeping and not been successful.

It must be understood that our excellent coadjutor has reduced the practice of bee-keeping to a science. He keeps the most minute data from day to day and year to year, and his records of experiments are of the greatest interest and value. Nothing is too trivial for notice; the note-book, in which each hive has its special number, is constantly in use, with the result that the condition of every stock in the apiary can be seen at a glance. Not only can comparisons of the various stocks be made in the current season, but also for a series of years that is rapidly advancing in the second decades. Beyond these figures there are others denoting money, and showing the amounts paid and received in connection with the bees each year; and though some seasons have been comparatively bad, the records show how profitable bee-keeping has proved over the whole period, thus demonstrating the essentially practical nature of the system of management.

The whole of the work in the apiary is done by its owner, and it is equipped in the most efficient manner. Not that it is the home of things elaborate or fanciful; on the contrary, it is wholly practical, everything being found that is useful and necessary, and nothing that tends only to show and ornamentation. Good as "An English Bee-keeper" is amongst his bees, he is equally as ready with his pen, and this fluency relieves us of going into elaborate details regarding his procedure—indeed such would only be occupying valuable space unnecessarily, as all readers of the bee notes will, from his writings, be quite familiar with it. We may, however, add in conclusion to what he attributes his success, and in his own words—"I have been successful in bee-keeping because, firstly, I have worked on economical, yet complete lines; secondly, I have paid the strictest attention to apparently insignificant details; and thirdly, I have given incessant attention, doing any work immediately on finding it was necessary." To sum up, we might say that "An English Bee-keeper's" motto is "thoroughness;" and no better samples of honey than his, and few so good, have been received at this office.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, The Royal Gardeners' Orphan Fund, Chiswick, W.

TRADE CATALOGUES RECEIVED.

Bell & Bieberstedt, Leith.—*Wholesale Seed List*.
W. Cutbush & Son, Highgate.—*Seeds*.
Fidler & Sons, Reading.—*Seeds*.
W. Fromow & Sons, Chiswick.—*Seeds*.
Kent & Brydon, Darlington.—*Seeds*.
J. Laing & Sons, Forest Hill.—*Seeds*.
W. Lovel & Son, Driffild.—*Strawberries*.
T. Methven & Sons, Princes Street, Edinburgh.—*Seeds*.
W. Paul & Son, Waltham Cross.—*Seeds*.
Ant. Roozen & Son, Overveen, near Haarlem.—*Seeds and Bulbs*.
C. Sharpe & Co., Ltd., Sleaford.—*Seeds*.
H. & F. Sharpe, Wisbech.—*Wholesale Seed Catalogue—Potatoes*.
J. Sharpe & Son, Bardney, Lincolnshire.—*Guide to Practical Gardening*.
R. Sydenham, Tenby Street, Birmingham.—*Unique Seed List*.
The Penny Seed Packet Company, Loughborough.—*Seeds*.
R. Veitch & Son, Exeter.—*Seeds*.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

* **Cattleya Prince of Wales** (*Young Orchid Grower*).—See note and woodcut on page 11 for the information you require relative to this charming Orchid.

Water Pots (*X. Y. Z., Lincs*).—As the water pots you mention have not been advertised in our columns, we do not possess the address of the makers, or would furnish it to you with pleasure. We have heard they are good, but have not used them.

Maréchal Niel Roses (*Nemo*).—If you propose to make the Roses the principal feature of the house, you might imitate a plan which we find to be both convenient and profitable—namely, to plant them out at the front of the house, and train them up wires very similar to Peaches. You do not mention the height of the front wall, but assuming it to be from 2 to 3 feet you could get a plant budded on to a standard Briar so as to bring the growths to a level with the lowest wire. Shorten to five or six eyes, and train the resulting shoots in the form of a fan across the wires. Immediately after flowering in spring head the growths back to the point from which they started. It is impossible to say how many flowers you would eventually get from a plant, as much would depend on local circumstances and the attention given, but we are not satisfied if we do not cut from 150 to 200. You might get more than this, you might get less. While the Rose is making its growth after being headed back we contrive to get a crop of Tomatoes off the back wall, from sturdy plants prepared for putting out, with fruit clusters already showing. "Niels" grown on this system have borne splendid clusters for ten years. Success with the Maréchal out of doors in your locality is doubtful, as it may be too damp to insure thoroughly ripened wood. We should proceed by experiment.

Tomatoes in Troughs (*S. L.*).—A few words were accidentally omitted from the remarks to which you refer. The Tomatoes, which grew so well and fruited so abundantly in 8 inches of firm loam on 6 inches of chalk, were in a border about 4 feet wide. The house was new, and the first crop paid for the cost of its erection. We have also seen Tomatoes grown in troughs 9 inches wide and deep, cover the roof of a house, like Vines, and bearing scarlet clusters of Tomatoes from base to summit. Further, we have seen and measured stems of Tomatoes 17 feet long roped with fruit, the plants being grown in a trough 9 inches wide, and 15 inches deep, or just the size you mention. In neither of these troughs was chalk employed as drainage material, but in the one 15 inches deep crushed lime rubbish and dry wood ashes were mixed with the turfy loam that was made quite firm. Also in both cases top-dressings of rich loam were given from time to time, which became netted with feeding roots, and liquid support was given freely when the plants were bearing. The border referred to was surfaced with manure, and the free drainage further admitted of copious supplies of water and liquid manure being given without souring the soil. With

a dense mass of roots, and others ever forming, it is almost astonishing to see what Tomatoes can be made to do in a small bulk of soil *plus* liquid support given just when needed. The mistake that many growers make is in having borders too rich, light, and deep at the outset, thus inciting succulent growth, which is the reverse of fruitful, even if the plants do not fall a prey to their enemies. Of course, some Tomatoes grow much more strongly than others. The variety that fruited freely to a length of 17 feet was Ham Green Favourite.

The Strawberry Everlasting (*Countryman*).—This is a plant that is seldom seen, and we are not surprised at your not being familiar with it. The botanical name is *Astelma eximium*. The bracts are of a rich rosy tint, and incurved so as to form close heads, bearing some resemblance to Strawberries. The plant is a native of the Cape, and has long been known in this country, but is not often seen. The woodcut (fig. 7) represents the flower head and bracts of the full size, one of the lower heads being shown in a young state before the central flowers have faded. The leaves and stem are whitish green in colour, and thickly clothed with a woolly pubescence. The dried flower heads are employed for the same purpose as other Everlastings. The plant is not

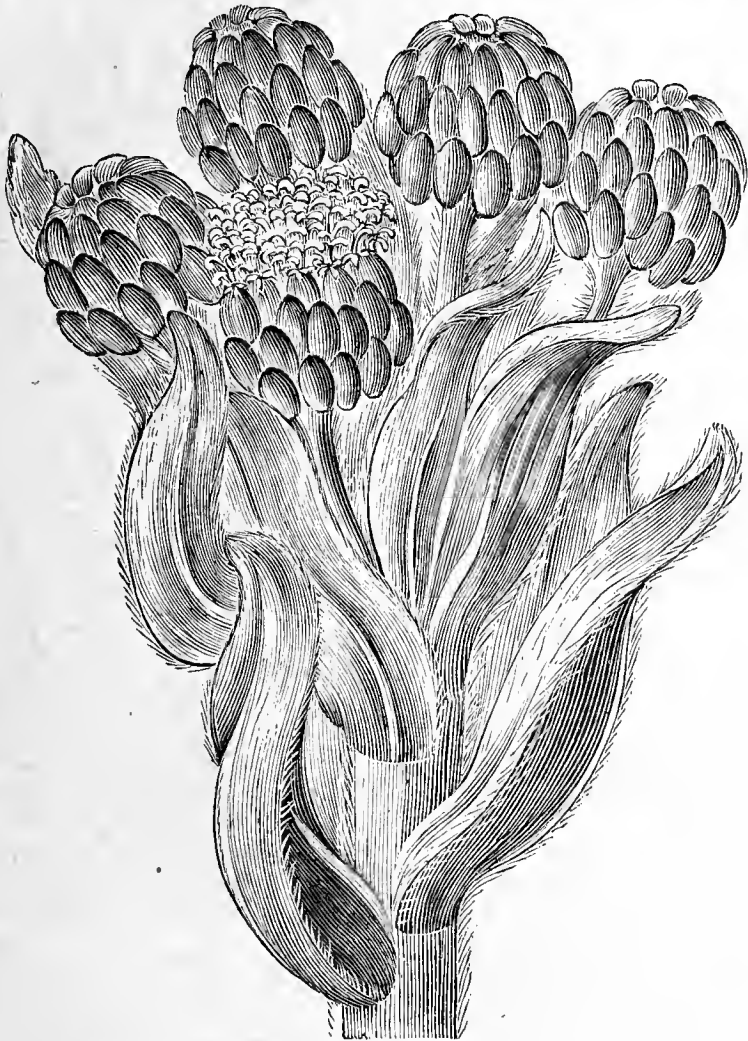


FIG. 7.—THE STRAWBERRY EVERLASTING.

generally cultivated in this country, the market supply being obtained we believe, from the Cape of Good Hope. Seed might possibly be obtained from dealers in this country, but we have not observed it offered.

Names of Fruits.—*Notice.*—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. They should be sent on the first indication of change towards ripening. Dessert Pears cannot be named in a hard green state. (S. P.).—1, Dutch Mignonne; 2, Court Pendu Plat; 3, probably a local seedling, worthless; 4, Catillac; 5, Uvedale's St. Germain; 6, unknown. (G. C. N.).—1, Worcester Pomeroy; 2, D'Arcy Spice; 3, Wellington. (K. A. A.).—Pears: 1, Beurré Superfin; 2, Winter Nelis. Apples: 1, A variety of Blenheim Pippin; 2, Ribston Pippin; 3, Cat's Head; 4, Lemon Pippin. (L. W. C.).—1, Seedling from Blenheim Orange; 2, An unknown seedling, worthless; 3, Wyken Pippin. (G. K.).—1, Doyenné Goubault; 2, Bergamotte Rouge; 3, Duc d'Aumale; 4, Beurré Capiaumont; 5, Spanish Warden; 6, Doyenné Defays.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (R. L.).—Owing to having been in the post over Sunday, in addition to bad packing, your scraps were quite dead. Had they reached us in a fresh state they would have been insufficient for positive identification. (F. O. O.).—*Luculia gratissima*. (B. G. D.).—1, *Justicia carnea*; 2, Paper White Narcissus; 3, a variety of double white Primula; 4, dead; 5, *Adiantum farleyense*; 6, *Asplenium bulbiferum*.

COVENT GARDEN MARKET.—JANUARY 6TH. FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, $\frac{1}{2}$ sieve	1	3	to	2	Lemons, case	11	0	to	14
Filberts and Cobs, per 100 lbs. 40	0	45	0		Plums, $\frac{1}{2}$ sieve	0	0	0	0
Grapes, per lb.	0	6	1	6	St. Michael Pines, each ..	3	0	8	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Asparagus, per 100	0	0	to	0	Mustard and Cress, punnet	0	2	to	0
Beans, $\frac{1}{2}$ sieve	0	0	0	0	Onions, bushel	2	6	4	0
Beet, Red, dozen	1	0	0	0	Parsley, dozen bunches ..	2	0	3	0
Carrots, bunch	0	3	0	4	Parsnips, dozen	1	0	0	6
Cauliflowers, dozen	2	0	3	0	Potatoes, per cwt.	2	0	4	9
Celery, bundle	1	0	0	0	Salsify, bundle	1	0	1	0
Coleworts, dozen bunches ..	2	0	4	0	Seakale, per basket	1	6	1	0
Cucumbers	1	0	2	6	Scorzonera, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Shallots, per lb.	0	3	0	0
Herbs, bunch	0	3	0	0	Spinach, pad	0	0	4	0
Leeks, bunch	0	2	0	0	Sprouts, half sieve	1	6	1	0
Lettuce, dozen	1	3	0	0	Tomatoes, per lb.	0	4	0	0
Mushrooms, per lb.	0	0			Turnips, bunch	0	3	0	9

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (various) doz.	6	0	to	36	Ficus elastica, each	1	0	to	7
Aspidistra, dozen	18	0	36	0	Foliage plants, var. each	1	0	5	0
Aspidistra, specimen plant	5	0	10	6	Genista, per dozen	12	0	18	0
Azalea, per dozen	2	0	3	6	Hyacinths large, per dozen	9	0	15	0
Chrysanthemums, per doz.	6	0	12	0	" (Roman), doz. pots	6	0	8	0
" per plant	1	6	2	0	Lycopodiums, dozen	3	0	4	0
Cyclamen, per dozen	9	0	18	0	Marguerite Daisy, dozen ..	9	0	12	0
Dracæna, various, dozen ..	12	0	30	0	Myrtles, dozen	6	0	9	0
Dracæna viridis, dozen ..	9	0	18	0	Palms, in var. each	1	0	15	0
Erica, per dozen	9	0	12	0	" (specimens)	2	1	0	63
" hyemalis, per dozen	12	0	15	0	Poinsettia, per dozen	12	0	18	0
Euonymus, var., dozen ..	6	0	18	0	Primula sinensis, per dozen	4	0	6	0
Evergreens, in var., dozen	6	0	24	0	Solanums, per dozen	12	0	15	0
Ferns in variety, dozen ..	4	0	18	0	Tulips, dozen pots	6	0	9	0
Ferns (small) per hundred	4	0	6	0	" in boxes, per dozen	0	8	1	6

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	4	0	to	8	Mignonette, dozen bunches	3	0	to	6
Asparagus Fern, per bunch	2	0	2	6	Mimosa (French) per				
Azalea, per dozen sprays ..	0	8	1	0	bunch	1	0	1	6
Bouvardias, bunch	0	6	0	9	Narciss, White (French),				
Carnations, 12 blooms ..	1	0	2	6	dozen bunches	1	6	2	6
Christmas Roses, 12 blooms	1	0	1	6	Narciss, Yellow (French),				
Chrysanthemums, dozen					dozen bunches	2	0	4	0
bunches	3	0	9	0	Orchids, various, per dozen				
Chrysanthemums, twelve					blooms	1	6	12	0
blooms	2	0	6	0	Pelargoniums, 12 bunches	6	0	9	0
Daffodils, dozen blooms ..	0	9	2	6	Pyrethrum, dozen bunches	1	6	3	0
Eucharis, dozen	3	6	4	0	Roses (indoor), dozen ..	1	0	2	0
Gardenias, dozen	3	0	5	0	" Tea, white, dozen ..	1	0	2	6
Geranium, scarlet, doz.					" Yellow, dozen (Niels)	6	0	9	0
bunches	6	0	9	0	" Red, dozen blooms ..	2	0	3	0
Hyacinths (Roman), 12					" Safrano (English),				
sprays, and per bunch ..	1	0	1	3	dozen	1	0	2	0
Lilac, White (French), per					" Pink, per dozen	3	0	6	0
bunch	3	6	5	0	Smilax, per bunch	3	6	5	0
Lilium longiflorum, twelve					Snowdrops, dozen bunches	2	0	4	0
blooms	6	0	8	0	Tuberose, 12 blooms ..	0	6	1	0
Lily of the Valley, 12 sprays,					Tulips, dozen blooms ..	0	6	1	6
per bunch	1	0	2	0	Violet Parme, per bunch ..	3	0	4	0
Marguerites, 12 bunches ..	4	0	6	0	" per doz. bunches ..	1	6	2	0
Maidenhair Fern, per dozen					" (French), per dozen				
bunches	4	0	8	0	bunches	1	6	2	6



GATES.

OLD age and failing memory go together, but I almost think one of the distinguishing marks of the sluggard was his gate which hung on one hinge—inconvenient, if nothing else. You can almost tell at a glance whether any particular farmer walks round his fields or rides. Walking you can raise a gate that opens hardly, for riding you must have them hung with such nicety that they

can easily be opened with a hunting crop or the hooked end of an Ash plant, and so necessitate no dismounting.

Of course, if a man is very tidy, even though he be a walker, he looks well to his gates, knowing them to be, as it were, an index to his whole system of management. Gates are not costly, and well hung and well gas tarred or painted should have a fairly long life. Of course much depends upon the class of stock grazed in the field. Young horses are perhaps the most destructive, but a small round rod of iron on the top bar of the gate, raised about half an inch, and a little barbed wire, will prove a salutary check, and will do them no harm.

A gate must combine lightness and strength (quite a possible combination with good material and good design), and pains must be taken to see that the posts are long enough, strong enough, and firm enough. The question as to style must be left to individual taste, as almost each county has its own particular pattern. Remember, a gate too heavy knocks itself to pieces without any extraneous aid. Get the best wood your means will allow. Oak comes first, and where oak is plentiful use it without grudging. Ash, once cheap, is now too dear as a rule for ordinary farm gates. Well-grown larch from strong land has great tenacity of fibre and wears well. There is much wood that is absolutely useless, and yet is made up "because it is so cheap." Yes, certainly cheap when it snaps and breaks in every direction. Pitch pine is one of the chief defaulters. If you do use foreign wood let it be the best that can be bought. Baltic red deal well creosoted will be of long duration.

There is a difference of opinion as to the merits of rivets *v.* nails. Rivets are bad to manage, though neat in appearance. Good steel nails are perhaps the best for the average workman's use, for they are very pliable, and can be riveted to perfection.

For posts again oak comes first and foremost (not green by any means), with at least four years' seasoning. Creosoted Norway spars make capital gate posts, and may be preserved almost everlastingly by fresh coats of tar or creosote. Where stone or slate can be got (say Derbyshire or Wales) by all means use it. Stone or slate must be set in cement. The jaw bones of the whale^e used in old days to be seen (relics from the Greenland fisheries) I do not know of more than one pair left now. Have you seen the tops of old posts covered with lead? I have, but not lately; I suppose they were too attractive to the bullet-making boy.

Give the top of the post slope enough, and plenty of paint so that there can be no lodgment of rain water to work decay. It is no use to think the gate post can be set anyhow; the life of the gate depends on the stability of its support. Make the hole deep enough and wide enough; remember there must be as much post out of sight as in sight. Have you ever thought how far and how deep the roots of trees extend? Shall you be surprised to learn that roots and branches pretty well balance one another? Nature is a good guide. In counties where flat stones are procurable they are used as wedges. Carefully dibble the soil in a bit at a time, ram it well home (idle men need not apply for this job), do not be in a hurry, and do not spare labour. Where expense is no great consideration a trench cut deeply from post to post to receive a beam, which acts as a wedge, is a fine idea. Cover the beam with soil, and just below the level of the gateway put in another beam. Some posts, again, are set in concrete; this allows of economy in wood, as the post need not be so long.

Too much stress cannot be laid on the hanging of the gate, and not one man in a hundred knows how to do it properly. In the ordinary way I will be bound to say the nose drags on the ground in less than a fortnight, and nothing can be more conducive to the destruction of the gate and to the destruction of the tempers of those who use it. The tendency of the gate is always to fall from the heel post. Short hook at the top, longer at the bottom, and both set well clear of the ground, will be found a preventive. The difference in length of hook must be at least 2½ inches.

The top hook should go through the post, and be secured with

a nut. This allows of a little adjustment as time passes. If the gate is meant to be self-closing greater length of hook must be given at the bottom. It is well to make gates at least partly self-closing. There is such a natural disinclination in the human breast to shut gates, that it is well to make the process as easy as possible. A gate that works stiffly is invariably left open, except by the most conscientious. The simpler the fastening the better, bearing in mind there are always shifty old cows and cunning old horses that can open any gate in creation. A gate that opens outwards on to a road is most unsightly, and also may become a source of great danger.

In painting again individual taste must have play. There is one rule that admits of no exception—*i.e.*, whatever be the colour see to the quality; let it be the best that money can buy. Coal tar looks well and lasts well, but is possibly a little funereal. One old friend always chose a deep good red; he said it gave a warm tone to the landscape, and it certainly wore well. Beside the consideration of smartness, it should be borne in mind that in this damp humid climate all outside woodwork must be well protected by paint if it is to last out half its life, and nowadays we require full value for every halfpenny expended on the farm or its belongings.

WORK ON THE HOME FARM.

The weather has again become very mild, and the rainfall has been considerable. The later sown Wheat is getting well out of the ground, and freedom from frost for another fortnight would see it well established, and safe at any rate from the ravages of the birds.

We have about finished manuring Clover stubble for a crop of Potatoes, and are commencing to plough it in 10 inches deep with chilled ploughs. Three horses in a plough will do an acre a day comfortably. We are also ploughing lea for Oats with the same ploughs, but not so deep; only about 7 inches in this case. We are doing this ploughing none too soon, for the sod must be fairly decomposed and the land solid before the seed is drilled, and we hope to have it in about the 1st of March.

The spare hands are busy with hedging, which has got considerably in arrear. The district councils are requiring the fences adjoining roads to be kept low, which is causing friction with occupiers, who do not like parting with shelter for their stock. Some fences have been allowed to become much too high, and as it is not always the highest fence that provides the best shelter the owners may be benefited against their will.

Sheep on Turnips on heavy land have been through a trying time lately. The folds after the thaw were in a dreadful state—a puddled mass—and many flocks have been removed to grass altogether for a time. We heard of large numbers having to be carted out of the field; they could not stand, much less walk. Fine weather is wanted very urgently to put things right; in fact, it is wanted by farmers now for every reason. Fallows are exceedingly wet, and will require a good spell of drying winds before they can be workable.

Potatoes move off very slowly; a sudden spurt one week is followed by a dead stop the week after. We are making them a very good sample, and keeping a considerable quantity for the cattle. These latter will consume as many as we can spare for them, for Turnips become relatively scarcer as time passes, and there is certain to be a scarcity before spring.

METEOROLOGICAL OBSERVATIONS.

OAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1896-7. December and January.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 27	30.363	42.0	39.9	N.W.	40.8	47.0	40.0	61.1	30.4	0.203
Monday .. 28	29.903	44.9	43.2	S.	39.9	51.2	41.1	56.9	32.2	0.123
Tuesday .. 29	30.348	33.9	33.4	N.	40.2	48.3	31.6	44.2	25.0	—
Wednesday 30	30.044	48.1	47.0	S.W.	40.0	50.6	33.1	52.7	27.2	0.049
Thursday .. 31	30.78	44.1	42.9	W.	42.0	50.0	43.8	59.0	37.0	0.031
Friday .. 1	30.358	44.2	43.0	N.	42.7	45.0	43.3	57.9	38.1	—
Saturday .. 2	30.563	29.2	29.2	N.	39.7	40.9	27.0	41.8	20.3	—
	30.242	40.9	39.7		40.6	47.6	37.1	54.1	30.0	0.411

REMARKS.

27th.—Bright sun all day; fine night
28th.—Squally and rainy till 10 A.M., dull and showery after.
29th.—A brilliant day, marred almost throughout by more or less London smoke.
30th.—Mild and dull.
31st.—Rain in small hours; bright sun from sunrise to noon; dull and drizzly from 2 P.M. to 5 P.M.; fair evening.
1st.—Rain at 6 A.M.; fair after, and brilliant from 10 A.M. to midnight.
2nd.—Foggy throughout.
A variable week, with temperature rather above the average.—G. J. SYMONS.

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Journal of Horticulture.

THURSDAY, JANUARY 14, 1897.

LOOKING FORWARD.

TIME flies! Another year has passed away with its pleasures and disappointments, leaving behind, let us hope, many pleasing recollections of good work honestly performed. Whatever the past may have been it is now beyond recall, and we have entered upon another stage in life's journey, a stage that perhaps will give us many opportunities of profiting by past experience, and thus avoiding errors in the future. It is, doubtless, sometimes good to take a retrospective glance, but I think unwise to allow our thoughts to dwell long upon events that "live only in the memory," for we live in times when there is no room for dreamers, but which offer splendid opportunities for "men of action." "Go forward" is the motto, which it seems more than ever necessary to adopt during these closing years of the nineteenth century.

There is every reason to believe that the present year will be a memorable one in the annals of horticulture. Already we have had placed before us in the pages of "Our Journal" several well thought out schemes by which horticulturists may commemorate the "Queen's long reign." Whichever of those schemes is eventually adopted I doubt not that willing and able men will be found to carry them out in a way worthy of so great an occasion. It is a matter of thankfulness for all, and I believe that every gardener in Britain would be ready to contribute a mite towards the necessary funds. Without appealing to high-flown sentiment it should not be difficult for us to see how largely all have benefited by the priceless blessings of liberty and comparative peace which the nation has enjoyed during the progress of the Victorian era. With the strong arm of the mother country to protect them these little islands have sent forth sons and daughters to form thriving colonies in distant lands, colonies which have extended and held out a hand to each other until at length they have formed a belt around the globe, carrying with them the just laws and sturdy vigour of a great race.

Can we imagine what Britain would have been to-day without this marvellous expansion, or measure the good it has done toward the progress of the world? All nations have

benefited by the colonial enterprise of Britain, for has it not provided a market for their goods and a home for those who seek their fortunes in distant lands, where the security of a protecting arm gives the necessary incentive to exertion? Gardeners, among other classes, have largely benefited by these advantages, for when the outlook at home has not been encouraging they have sought, and not in vain, their fortunes in other climes. Their cultural knowledge and grasp of detail has often in such instances speedily secured for them important posts. Others, whose inclination ran in the direction of owning a "bit of land" of their own, have succeeded by unflinching perseverance in establishing themselves upon their own farm or fruit garden, there to gather the fruits of their early labours till the end of their days. The stream of emigration continues to flow, and although at times we hear tales of woeful failure, I think if we could trace such failures to their true cause we should find but little reason for surprise. Failures we see at home in plenty, but the man with "grit," health, and a clear head usually manages to keep his head above water.

I claim in my humble way to be a student of human nature. It has always been my hobby to mark well the men I come in contact with. Should one of those individuals whom some call "lucky" cross my path, I find a good opportunity for mental notetaking, and during the process I invariably notice that the so-called lucky one has that undefinable "something" about him that must lead to distinction in one direction or another. These lucky ones could, I think, often tell us of struggles and exertions that do not appear upon the surface, neither are they recorded by word or pen. We are all perhaps too much inclined to think the dark days of adversity will last for ever. The failing of the age seems to be the want of a strong spirit of hope, and in my own mind I doubt not that this deficiency is the cause of failure with not a few; certain it is that given two men with equal advantages, ability, and tenacity of purpose, the one with the greater amount of hopefulness will, in the battle of life, leave the other far behind. How necessary, then, it is for us all to cultivate the habit of looking on the brighter side of life. No matter how dark our prospects may be, there is always a brighter side; and the blackest clouds have a habit of passing quickly away, to be followed by the full tide of bright prosperity.

At the beginning of each year it is especially desirable for all to look forward in anticipation of a prosperous time. Horticulture, like agriculture, has been passing through a long period of depression; happily, however, signs are not wanting that the clouds are breaking. The value of land is steadily increasing, and many uncultivated farms are being taken in hand again. We also hear from various sources that the nursery trade is in a fairly prosperous condition. These things are as little gleams of light to horticulturists who have long been watching for such welcome signs. These signs will also be especially welcome to those gardeners who are still "looking for an engagement," many of whom are perhaps well nigh weary of the waiting. 'Tis a sickening task, still the turn of the tide must come, and he who sticks close to duty will assuredly reap in some way his reward.—ONWARD.

PRECEPT AND PRACTICE.

In the "Canterbury Tales" Chaucer describes a certain dame as one "who often took leave, yet was loth to depart." This aptly expresses my feelings on being called back to a congenial theme by the hint courteously conveyed at the end of "The Gardener's Path" (page 554, December 10th, 1896). It would ill become me not to respond, and at least try to furbish up some little things from memory's storehouse as helps to our young men who are training and being trained in the glorious vocation of a gardener.

I must confess to having been a little mystified when considering

the lines upon which to proceed, and as it would not do to set out in a mist I begged of an older boy to throw a light upon the subject from his lamp of experience—to define the boundaries of our peregrinations in the pursuit and acquirement of knowledge, and we must thank him for his illumination, which again sets us going without any danger, I think, of getting lost in the fog.

Probably we shall not follow the subject upon strictly orthodox lines, nor upon those more sharply defined, over which you are being ably conducted by the most experienced guides, such as those who point the way in "Hardy Flower Notes," Orchids, Roses, Chrysanthemums, fruit culture, and the principal features of elementary or up-to-date gardening; but, as an old hand described his method of planting as "zigzagging," we will "zigzag," and, I trust, set down many little things which may be both useful and ornamental in our vast field; so vast, indeed, that diffidence shall not prevent me in again tuning my pipes for that long dance I fain would lead you.

Having caught the flashes from my esteemed illuminator's lamp, they may be turned on here to show the way better than any further preamble of mine would do. I—an Old Boy—asked Mr. Older Boy, as before mentioned, to define the boundaries of this fresh survey; what he sees, what he does not see, and what he says are as equally worthy of your attention as they have been of mine; therefore mark, learn, and inwardly digest the following, I beseech you.

"I should not like to try and limit the boundaries of the illimitable—education. I can see no boundary but the grave, if that. The gardeners of the future must be accomplished; must be educated in head, hand, and heart; as proficient as they can make themselves in the arts and sciences bearing on their vocation. They must be educated in discretion, learn to know themselves and others whom they serve or with whom they associate. Educate themselves in the amenities of life—in demeanour, conversation, and correspondence; also in botany, etymology, vegetable physiology, geology—at least in part; in the laws of nomenclature, and, in fact, in everything bearing upon their duties, and in the building up of themselves as men; in arithmetic, for accounts; mensuration, and estimates in planning, drawing, and execution; in the use of all kinds of instruments pertaining to the art, from the spade and the hoe to the compasses and pen. They must be skilled artificers in everything within the scope of their duty, regarding all work, light or heavy, at the desk or on the land, as intellectual work, and glory in it. It is only then that it will be pleasurable, and only when it is so can the highest excellence be attained. For this all may and should strive, and those who approach the nearest to an ideal of scientific and practical competency are the best, the most esteemed men, and the best of either men or material always did and always will find the way to the front."

"There is a loud, wild cry of 'too many gardeners.' It is a hollow sound—a fallacy. There are too many calling themselves gardeners, which is quite another thing. But how is all this multifarious knowledge for the making of real gardeners to be obtained? There must be, first, desire—strong yearning, fed by ambition; secondly, keen cultivated powers of observation. Then acquired quickness of perception and retention of impressions. Diligence, not of the common fitful order, but the much rarer constant kind, which difficulties strengthen. In the pursuit of these attributes health must be maintained as far as possible by prudent habits of life. Among the real obstacles of life one of the greatest is self-sufficiency in knowledge, which means ignorance; another is over-indulgence in pleasures of a sporting nature. If bad habits cannot be prevented or overcome their victims must be swamped in the great deep sea of lost opportunities."

I must claim the indulgence of Mr. Older Boy for having turned this powerful light upon our course to its full extent—that is, so far as the rays were revealed to me. How much candle power there might be in reserve I will not contemplate, but to our readers no apology need be tendered, for I would not have deprived them of one ray—one light or shadow—he has thrown upon the subject. And now young travellers I move that we adjourn ere I trim my flickering taper by which precept and practice may be zigzagged through the daily planting of a young gardener's life. In doing so I have heard more than one of you propose a hearty vote of thanks to our experienced illuminator, which is gratefully seconded by—AN OLD BOY.

(To be continued.)

A DREAM OF FAIR GARDENS.

ONLY a dream, courteous reader, a reminiscence. This is no day for gardening; the wind is in the south-east, and half a gale is blowing. It is nearly a mile, as the crow flies, to the sea, and yet one may hear the turmoil—the wild music of the storm. One may only hear that trio by the sea—the deep thunder of the waves as they break into clouds of white foam, the sonorous tenor of the wind as it rushes through the bare branches of the Elms, and now and again the shrill piccolo of the Bay tree leaves by my window as it chafes on the pane. "It is an ill wind," as the old saying is, "that blows no one any good," and therefore one must not complain. The last gale scattered along the shore here at least 200 tons of seaweed—one of the richest of natural manures, and it was eagerly gathered by farmers and market gardeners. And so, safely sheltered from the driving storms without, I wheel round my armchair, toss on the dog irons another billet of beech or fragrant pinewood, and conjure up some visions of the many gardens which, by the courtesy of their owners, I have seen in the time of Roses, blossoming Beanfields, and new hay.

To many of us there are few, if any, pictures more delightful than those of a garden, and, singularly enough, so few artists attempt to paint such. Perhaps not one in a hundred of the pictures hung in the Royal Academy treat of the garden, and the few there are exhibited are not the work of *men*. But the pictures I think of are not of canvas, colour, and brush; they are fair Flora's own. To those who look in earnest it is only to close the camera of memory for a brief spell and the scene reappears, the narrow environment of the dwelling melts away, and summer again steps the garden in golden sunshine and the broad landscape in a shimmering mirage.

The first garden of my dreamland is part of a large estate lying within a score miles of Charing Cross. The monogram of the noble owner is SX. We enter the kitchen garden from the high road, and pass beneath a leaf-fringed archway in a high, lichen-stained wall. On the right of the broad, smooth path is an oblong bed, perhaps 100 yards long by 6 yards wide. A neat Box edging surrounds it, and next to this is a yard-wide belt of white Pinks. Down the centre, at intervals wide apart, stand old dome-shaped Filberts, and beneath and as far as the belt of Pinks there is nothing but Lily of the Valley, Pinks and Lilies—that's all, besides the drooping Filberts. The reader may imagine the quiet elegance of such a bed, and its fragrance as early summer showers patter and sparkle among the Lilies.

A score yards distant is another broad, smooth path o'erarched by blossoming fruit trees. Less than a month before when I saw them they were in the pride of their springtide beauty. There had been a shower, and as the petals, pink and silver, fluttered down the sunshine smote them. Beneath, on each side, was a border of old English flowers—York and Lancaster Roses, great crimson Pæonies, and Solomon's Seal. A garden seat beneath was a favourite resting place of the venerable Earl. Here he would sit, with nothing to disturb his reveries but the silvery ring of the busy wing, the songs of the merle and mavis and charming linnet; while all day long and night could be heard the "amorous descants" of the nightingale.

Opening an opposite door one emerges suddenly upon the pleasure grounds in front of the Hall. Wide, smooth lawns of a texture velvety and delightful stretch away on one side towards a fine old castellated residence. Magnificent Cedars two centuries old spread great, dark flakes of foliage, inviting the visitor to a seat in the grateful shade beneath. On all sides are rare Coniferous and other trees. Over the Lilled pool there droops a Willow from sad St. Helena, there a Bay Tree from Virgil's tomb, and there is the olivary in which my lady culled her simples; there a quaint little garden of sweets, over whose protecting fences ramble Jasmine, Roses, and Honeysuckle. In the back of the fence are three circular apertures a yard in diameter, each affording a delightful picture of the woodland drives beyond.

This old garden was a favourite resort of John Evelyn; and that old and learned Stephen Switzer used to say of it, that "at Cashibury the polite spirit of gardening shone brightest," and that he "never saw that truly delightful place without being more than ever ravished by its natural beauties." By the way, our magnificent garden at Kew owes not a few of its fine specimens to the tree-monger, erst of Cashibury.

The next garden of my dreamland lies, perhaps, six miles distant by the main road, and not far from a breezy, picturesque common. It is entirely hidden from view by belts of woodland—a delightfully secluded spot away from the beaten track, and so screened by trees that not a particle of highway dust, nor a whisper of the turmoil of great London can be heard. Green meadows slope to a lake, in which flocks of wild fowl disport, while beyond rise the grey towers of old St. Alban's Abbey. We entered by the

lodge through a charming old garden, with beds of curious and beautiful herbaceous plants on each side. This mingling of flowers, fruit, and vegetables, though not fashionable, makes the so-called kitchen garden more interesting and attractive.

The chief feature of interest, however, is the delightful garden on the south. All the year round there is something to admire here, but more especially in spring and autumn. In the latter season, however, there are magnificent masses of foliage of the richest hues—Scarlet Oak, Liquidamber, Copper Beech, and varieties of the sportive Acer family. Near the centre of the lawn stands one of the finest Tulip Trees in the country. There is little trace of winter in such a garden, with its abundance of evergreen shrubs, Laurel, Bay, and Holly, and a magnificent grove of Scotch Fir—perhaps the most picturesque of British trees. Then in spring there is the wealth of lighter colours peculiar to the season: the Thorns—crimson, pink, and white; the great milk-white bosses of the Guelder Rose, the golden rain of the Laburnum, the orange scarlet of the Kalmias, the snow white clusters of Clematis montana, the elegant blue racemes of Wistaria.

But away to the far west. One might linger for hours in Mr. Bolitho's beautiful garden at Trewidden, and make fresh discoveries at almost every step, a garden fanned by moist Atlantic breezes, and nourished by a purer light; might see how the hand of the landscape gardener—probably the proprietor himself—had transformed the quarry into fairy glens in which the Tree Fern and Palms luxuriate, and things of humbler growth rejoice in the soft moist air and chastened light. But no! there is another more famous garden that I fain would see again. So taking again the wings of dreamland we flit thirty miles due west to that paradise of flowers—Tresco, in the Scilly Isles—the land of Lyonesse.

Standing on the Old Quay of St. Mary's, we see across the narrow channel a wooded islet, from the summit of which a stately house looks down. The climate of the Scillies is delicious, and as one might expect, where skill too is requisitioned, there is a wealth of foliage and flowers. In some of the cottage gardens, and by the wayside tall stems of the stately Aloes rise like huge candelabra. And then as one winds one's way through the road to the Abbey, Palm-like Dracænas and New Zealand Phlox, together with huge Hydrangeas, and Fuchsias a dozen feet high stand on each side of the drive; while the walls of Cupressus give place to bays in which flourish the rarer Rhododendrons and Tree Ferns.

As we enter the gardens by a cool, shady, Fern-draped walk we are invited by a courteous inscription to enter the enchanted grounds, so please you, and welcome. Immediately in front of us is the rock garden, in which the hollows and interstices in the granite pile are filled with flowers. That blaze of rainbow hues that flashes on the astonished visitor is not soon forgotten. For the most part it consists of Mesembryanthemums, from pure white, primrose, and orange through the gamut of rosy tones to crimson and deep purple. Myriads of blooms crowd together, eager to be kissed by the golden sunlight. It were worth while almost to watch for a passing cloud to see the rayed blossoms close and open again—but one may watch long for a summer cloud here. Tresco is the home of the Mesembryanthemum, as it is of the Daffodil. One may see patches of it growing on the wayside walls, and by the coastguardsmen's station a large succulent species clothes the banks by the beach with dense foliage and primrose-coloured flowers. In picturesque God's acre great masses of magenta blooms spread a glorious mantle over the graves of mariners saved from the sea.

The gardens at Tresco form a series of terraces on each side of a central walk, shaded by Palms, Tree Ferns, and Aloes. These plots on one side are for the most part assigned to some favourite of Flora's Court—Roses, Carnations, Lilies, Stocks, and so on. In such soil and climate herbaceous flowers run rampant, and soon revert, like the tricolor Pelargoniums, to the normal type. We pause for a moment to glance into a pretty conservatory where there is ripening, without fire heat, a fine crop of Grapes. Here grows that most elegant Glory Lily of Japan, which does not seem yet to have got into commerce. Another tree of rare elegance is the Fourcroya, a Mexican; it is from 15 to 20 feet high, with a glossy tapering stem. From the summit, dome shaped, there droop long pendulous racemes of yellow flowers, while long flag-like leaves clothe the base of the stems; but it is for the Daffodil perhaps that Tresco and St. Mary's are most noted. Wordsworth speaks of them:—

"Ten thousand saw I at a glance,
Tossing their heads in sprightly dance."

One might see there ten millions, from the Giant Emperor, Empress, Sir Watkin, and Horsefieldi, to the tiny nanus and Angel's Tears. In February and early March, when all here is sombre and frost-nipped, wide stretches of the landscape at Tresco are far more brilliant

than that Field of the Cloth of Gold of which history tells us. Beautiful, charming, delightful as these Isles of Scilly are, the landsman, not without misgiving, turns his eyes eastward, and sighs as he thinks of that thirty miles of stormy seas and the *mal de mer*.

And why, someone asks, need the Londoner *dream* of gardens? In spring and summer he has the parks, each now with its delightful parterre. Then he can ramble at will through those unique gardens of Royal Kew, enjoy the rainbow hues and sweet odours of the plant houses, sit beneath the Tree Ferns and Acacias of the temperate house, or linger among the tropical foliage in the Palm house.—T. W. H.

THOUGHTS ABOUT FRUIT GROWING.

(Concluded from page 7.)

LOOK round any of the agricultural shows held under the auspices of the Royal, or any of the county societies, you find cattle, implements, roots, and so forth, but rarely any fruit, except it be a nurseryman's honorary exhibit by way of advertisement, and yet no one will deny that fruit is in every respect a farm crop. The promoters of the shows themselves are ready to admit the importance of a better system of fruit culture, yet nothing is done at the exhibitions to encourage it. There appears to be an idea that fruit exhibiting belongs entirely to flower shows—institutions for which the average farmer shows some contempt. How few there are amongst the agricultural class consider the importance of fruit culture. In its highest sense the occupation belongs to the gardener, and with the gardener they are content to let it remain.

To deny that strides have not been taken would be absurd, and the sight of many acres of young trees taking the place of old and worn out orchards is gratifying to the enthusiast. In strictly fruit growing districts one is apt to get confounded by contrasts. In Kent, the favoured fruit growing county, this is very apparent, for here can be seen both bad, good, and indifferent. One is surprised at the condition of some of the orchards. The trees are old and cankered, and completely covered with moss and lichen growths, all so detrimental to the welfare of the trees. Insect pests abound, and no steps are taken to combat them. Can trees pay under such conditions? No, of course not; they have no chance, and the farmer sighs and complains of bad times. Here, surely, there is a want of knowledge coupled with a lack of energy, and it seems a shame to cumber the ground with such profitless trees, rendered so by long neglect and want of system.

Fortunately this cannot be termed general, and it is a pleasure to see some of the orchards. The trunks all white with applications of lime to prevent and destroy the pests that are harboured in the next orchards. Trees are being examined, and saw and pruning knife are brought into requisition for the removal of dead and cankered branches. Then, again, young and vigorous plantations are springing up in many localities, and bid fair to give good returns in due time. Such steps in the right direction are by no means uncommon, and many cultivators are realising the importance of the truth—that if fruit is worth growing at all it is worth growing well. Yet the disadvantages are likewise great. Here is a man who takes a pride in his fruit trees; he tries to grow them well, keeps them clean, and endeavours to keep in check the attacks of insect foes. Such a man deserves encouragement, for it is such as he that reap profit out of the occupation. In the next holding, however, may be found a farmer of a different school. Look at his trees, and note the lack of care and labour. They are infested with insects, and no wonder. But this is not the worst, for if he alone suffered he would only be reaping the harvest of dilatoriness. His neighbour, the energetic man, suffers also through the neglect, as the trees which he is endeavouring to keep clean become infested with the insect pests which migrate from the adjoining orchard. This seems hardly fair, and I think I am correct in saying that in Tasmania there is a law which enforces all fruit growers to keep their trees free from insect pests. This is a means of protecting the industrious grower, and perhaps some such power could be vested in the local authorities at home. The matter has already been suggested, and was spoken of at the Conference at the late Crystal Palace Show.

The importance of the fruit-growing question, and attention to even the smallest details, are points which many growers overlook. As an instance a Midland farmer wondered why his neighbour could always get larger and finer Damsons than himself, therefore obtaining a better price, though soil and aspect were the same. He did not even consider the fact that while the liquid which drained from his manure heap ran away, probably to waste, that of his neighbour was carried into the orchard, and applied to the roots—there lay the secret, if such it can be called. Much certainly has

been done to propagate a better system of fruit culture, but it is questionable whether the farming class generally have yet realised the importance of it. Horticultural authorities have done and are doing much to assist the industry, but their efforts do not appear to appeal to the farmer to any appreciable extent. Establish a coalition with agriculture proper; let the two go hand in hand, with one object in view, realising that their interests in this respect are mutual, then may be anticipated a better condition of affairs on the part of a class who seem slow and reluctant to give up what they know to be unsatisfactory.—G. H. H.

THE R.H.S. EXAMINATIONS.

I HAVE no doubt very many young readers of the *Journal of Horticulture* feel very greatly obliged to "A Student" for the answers he is publishing to select questions set at the last May examination. Of the four, which are so excellently answered, three do not properly come within the scope of practical gardening. The one marked No. 1 certainly does, because it relates to the soil and its preparation by digging for the reception of crops. That was a matter well worth greater elaboration; but the other three questions and answers are essentially scientific, and whilst I am very far from deprecating the possession of such knowledge by gardeners, yet I do most certainly think that so long as it is felt desirable to test what may be called "practical" knowledge as well as "study" knowledge, that the two things should be kept separate, and that practical gardening should not be confounded with theoretical knowledge.

At present the questions, in spite of their divisions into grades, are a good deal mixed. The grades, if the term is to be used, should be for theory and for practice. Many students would no doubt like to sit for an examination in the latter, but fear to face the former, because they are not scientific students. I could heartily wish they were; but as they are not, and yet have excellent practical knowledge, why not let their practical knowledge have full play in the purely practical grade, and not seek to handicap it in scientific directions? No doubt there are many young men who, having satisfactorily got through the practical grade, would be induced another year to have a turn at the theory, inspired thereto by their success in the other department. But it would not do to term these grades upper and lower. There is no need whatever to classify them. Let each one have in its marks an equal value.

What we have to remember is that in the making of young gardeners the first consideration must be given to practical knowledge and experience; which no gardener can dispense with or be able to do without. For all ordinary purposes without doubt the purely practical youth is of more value in a garden than is one who is purely scientific, and that would, so regarded, place the practical work higher than the theoretical. But I do not wish to see any such classification. What we need is that the immense value of all knowledge relating to gardening, whether it be of practice or theory, shall be fully realised, and that every encouragement shall be given to all young men training to be gardeners to acquire all such knowledge they very well can. Apart from the usefulness of elementary scientific knowledge there can be no doubt farther that its possession adds greatly increased charm to gardening. But the range of knowledge in gardening is illimitable. It is hardly the young man who realises that; the old ones can and do. The youth who is twenty-five years of age no doubt thinks he knows a great deal, but he will only realise fully how little then he knows when he reaches the age of sixty-five.

Gardening is, perhaps, the most varying and progressive of occupations. Not but that certain great principles which underlie all work remain permanent, but it is in the attributes of gardening that change is so greatly found. Thus the life of the gardening student is not restricted to a few years of youth. It is constant, and indeed ends with life only. Yet the man who has in youth studied diligently, and is armed with good theoretical knowledge, will always find himself in his later life's study well ahead of his fellows.

The worst thing that can happen to any youth in his practice, if he purposes to become a head gardener, is to find his work centred too much in one groove. That sort of thing may be tempting, but it should be resisted. To be constantly amongst Orchids may be pleasant, but it is equally needful to understand all about plant and flower culture and decoration, to have full knowledge of fruit culture indoors and outside, to be equally familiar with vegetable culture in all its varied aspects, to understand soils and their requirements, the planting of trees and shrubs, the laying out of all sorts of gardens, indeed a knowledge of things innumerable. After all knowledge is far from being a bad pecuniary investment in relation to gardening, and that is an aspect worthy of consideration.—A. D.

GLADIOLUS GANDAVENSIS IN 1896.

THE opportunities of seeing this fine autumn flower except in my own garden were not many last season. The discontinuance of their exhibition at the Crystal Palace, to which one was apt to look during many years past, has left a great blank; while that at the Aquarium only offers prizes for a collection, a competition into which it is impossible for the amateur to enter with any hope of success. There remains then, so far as the metropolis is concerned, but the Drill Hall, and here on two occasions very fine collections have been exhibited, but only from the trade. In August Mr. Kelway exhibited a considerable number of spikes, while in September Mr. Burrell showed a grand collection from Cambridge.

I am convinced that the absence of amateur exhibitors is one of the reasons why the flower does not increase in popularity, and no society can be expected to offer prizes for a flower where at the most three growers contend in the amateur class. Those who have noticed our metropolitan exhibitions will recollect that besides myself there were two exhibitors of late years who showed their boxes of twenty-fours in grand style; these were Mr. W. H. Fowler of Taunton and Mr. E. B. Lindsell of Hitchin. Both of them have practically retired, I have been obliged to give up exhibiting, and I really know of no amateur who will step into the vacant places. Were there any prospect of good exhibitions persons might probably come forward, but as this is not the case the one reacts on the other, and the consequence is the present dearth of which we all complain.

I think perhaps that the very excellent seedlings that can now be obtained at a moderate price is another cause. This we know has been the case with other flowers. Very few people now grow named collections of Calceolarias, Cinerarias, or Begonias, as such good flowers can be obtained from seed. Our great growers of the Gladiolus grow a large number of seedlings, and even after they have selected those which they intend to name and place in their list the others are sufficiently good for all decorative purposes, and this is the object which most people aim at in these days. I have had unnamed seedlings this year which did not compare unfavourably with many of the named varieties.

The past season, which has been so perplexing a one to gardeners, whatever the flower they are most interested in, has made its mark on the Gladiolus. The droughty summer was, I think, not unfavourable to the plants; in fact, as their native habitat is South Africa one can quite understand this, and where the soil was retentive they did well. Such a soil as I have often advocated—viz., one that will grow Roses and Strawberries well, will grow Gladioli. As is the case with many other things, it is desirable if possible not to plant them in the same place year after year.

I think great advances are being made in what are called the Lemoinei hybrids. Blue flowers are appearing amongst them, and Mr. Burrell is strongly of opinion that we shall have large and well opened flowers of very striking colours. Some of them are much hardier than others, and I believe that they will stand our winters with a slight protection of coal ashes or cocoa-nut fibre; and although as yet they are not, to my mind, comparable with those of the gandavensis section, but they are very useful as ornamental plants for the garden.—D., Deal.



LÆLIA PRÆSTANS ALBA.

MOST Orchid growers are familiar with *Lælia præstans*, and probably everyone admires its delicate beauty. Many, too, will have seen forms with pure white sepals and petals and a coloured lip, but not all will know the real albino that was staged at the Royal Horticultural Society's meeting, on December 15th, by Mr. H. Holbrook, gardener to E. Ashworth, Esq., Wilmslow, Cheshire. This charming variety was named *L. p. alba* var. Ashworth, and received from the Orchid Committee a first-class certificate. Other than a little pale yellow in the throat the flower is pure white. The specimen staged was a small one carrying one flower only, but it attracted a considerable amount of attention.

MASDEVALLIA TOVARENSIS.

There are few Orchids at once so elegant, useful, and easily grown as this, the only pure white-flowered species in the genus. It would well repay special culture for cut flowers where those of

choice quality are in request, and it is also a charming addition to the Orchid flowering house. As its name implies, it is a native of Tovar, where it grows at a considerable elevation. It may be grown with the coolest section of Orchids through the summer months; indeed all the year round if the winter temperature is kept at or near 50°. This is quite low enough for the Odontoglossums, and the nearer this figure is approached the better for all cool Orchids.

The atmospheric moisture must be ample, frequent dampings being resorted to in bright weather and when fire heat is used. From the end of May until September the house wherein it is grown must be heavily and closely shaded all day long, freely

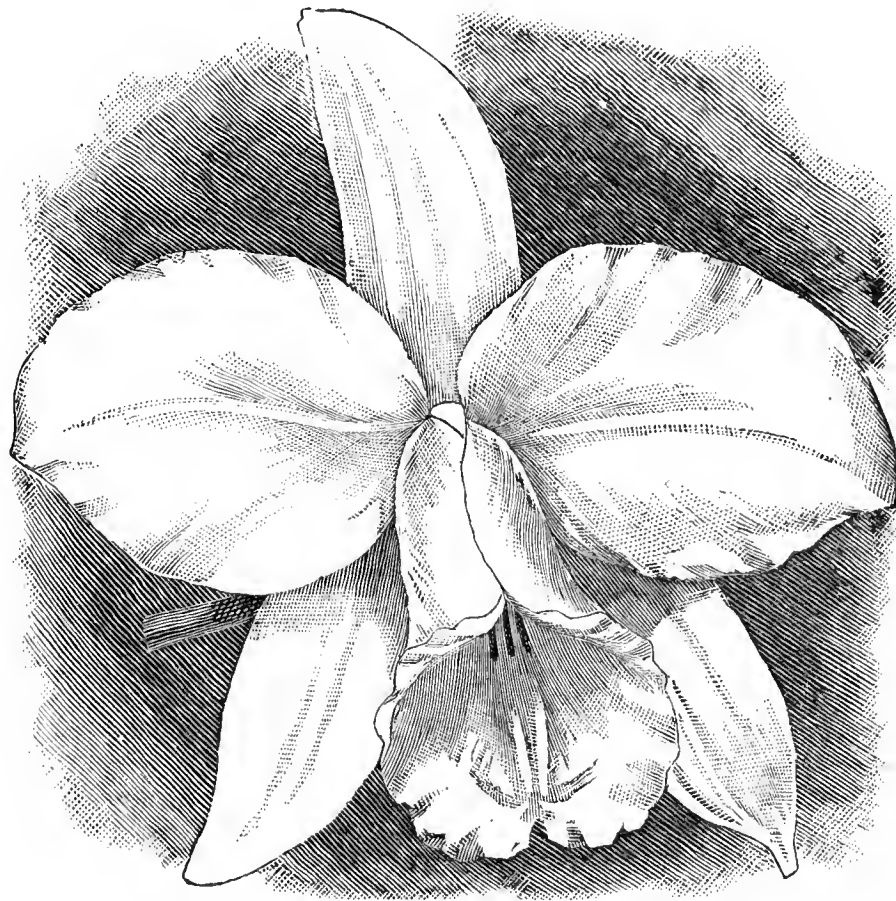


FIG. 8.—LÆLIA PRÆSTANS ALBA, ASHWORTH'S VAR.

ventilated at night and early morning, and kept rather closer at midday to husband the moisture. During late autumn and winter as much light as possible must be afforded, the glass being kept clean inside and out, and the plants kept well up to it by staging them on inverted pots. Syringing is never required in winter, but during the summer months a light dewing from a fine jet is helpful in keeping the foliage cool and keeping red spider and thrips at bay.

With regard to the roots, these are not so ambitious in pushing far away from the centre of growth as those of many other Orchids, therefore large pots are unnecessary, in fact harmful. Neat little specimens may be grown in the 3-inch or 4-inch sizes, and for the largest plants about 1½ inch of compost around the sides is ample. The latter should consist of two-thirds of clean, freshly gathered sphagnum moss to one of the most fibry portions of peat, plenty of small crocks and broken charcoal being kept at hand for mixing in as repotting proceeds.

Many growers are in the habit of shifting the plants in spring, but for reasons more than once given in these pages I am strongly in favour of repotting in autumn, early enough for them to be re-established before winter. Plants in bad condition must be done at any time of course, as no good, but the reverse, can come of leaving the roots in a close or water-logged compost. The pots must be quite clean, and drained well—nearly two-thirds of their depth—with clean crocks. Cover with moss, and having taken them as carefully as possible out of the old material replant so that the base of the leaves comes a little above the rim, finishing the compost nearly to the usual convex mound. The roots must be carefully watered for a week or two after repotting, and also during winter; but while growing freely in summer a liberal supply is needed.—H. R. R.

EARLY FLOWERS.—How very mild the weather keeps! Primroses and Polyanthes have been in flower outside now for some time, and on Christmas Day and Sunday last my bees were out as though it were a spring day. We have had a quantity of rain, with heavy fogs at times. I hope we may not have to suffer for it later on as regards spring frosts, for so far as I can see there is a good show for fruit blossom round about here.—JOHN GILBERT, Guildford.

DISQUALIFICATION AT SHOWS.

MR. J. MCINTOSH has, on behalf of the Ancient Society of York Florists, sent us a very courteous letter, also a schedule which was provided for the guidance of exhibitors and Judges of the show held at York on November 18th, 19th, and 20th, 1896. Mr. McIntosh states that the schedule was not intentionally withheld, but it was thought that the parties more particularly interested in the discussion would have sent a copy as sustaining their views. The conclusion was a reasonable one, and we accept Mr. McIntosh's statement unconditionally. It is right to add, however, that since our intimation on page 13 last week Mr. Riddell has sent a schedule, with the class marked over which the dispute arose, and the same class is also indicated by Mr. McIntosh. We are quite sure that, as this correspondent states, "the York Society has no desire to conceal anything; nor is it to be conceived that anyone concerned can have any such desire."

We had not thought of making any further reference to the York case at present (in fact we could not usefully do so in the absence of a schedule), but as Mr. McIntosh clearly intimates that the York Society, as well as readers of the *Journal of Horticulture* generally, desire an editorial opinion, the case shall be discussed with the same honesty of conviction which we believe has governed the acts and expressions of all parties immediately concerned.

Mr. McIntosh desires to "point out the main facts bearing on the Society's view of the question," and he does so with accuracy as follows—"In class 63 nine varieties of Apples and six varieties of Pears are simply mentioned" (meaning that any varieties might be staged). Class 60 asks for "three varieties of dessert and three varieties of baking Apples." Class 59, for "six Apples, dessert;" and class 58, "six Apples, baking." It will be seen that our correspondent reads backwards and upwards.

Mr. McIntosh then goes on to say, as he is fully entitled, "We (the Society) maintain that according to custom the Judges were bound to exercise discriminating powers with regard to the varieties exhibited in those classes, except class 63; or they would not be doing justice to exhibitors who were careful to stage nothing but what was in accordance with the wording of the schedule." That is a fair and cogent statement of the case from the Society's view, and it could not well be put more strongly.

It is not in any of those classes over which the dispute arose, but in class 57, thus set forth—"Collection of dessert fruit, six distinct varieties, to consist of two bunches each of two varieties of Grapes, two dishes of Pears, and two dishes of Apples." Mr. J. Riddell included in his collection a dish of Emperor Alexander Apple, and the Judges, as able gardeners and upright men as could be found, "disqualified" the collection, but recommended a grant equal to the second prize, £1. We find no words in the schedule authorising them to do so. Regulation 12 says, "Judges have the power of withholding or diminishing prizes where specimens are considered unworthy, and their decisions shall be final." But here the specimens were admittedly worthy, and because of that the Judges even went beyond the "wording" of the schedule in their desire to do substantial justice to the exhibitor. This is sufficient proof of the genuineness of their intentions.

That they were not within the terms of the schedule is clear from what follows in the same "regulation"—namely, "The Judges may recommend to the Committee extra prizes for collections of decided merit *not specified* in the schedule." The italics are ours; and the specimens which they, in the best spirit, desired to honour were very clearly "specified."

Now as to the finality of the Judges' decision. This did not extend beyond the "withholding of or diminishing prizes." Regulation 13 makes that point clear, for it states, "If any dispute arise notice must be given to the Secretary in writing on the first show day, before 9 o'clock P.M., when the case will be submitted to the Committee, whose decision shall be final." It is not a case of may, but *must*, and if Mr. Riddell did not act in strict conformity with that "regulation" he put himself out of court; if he did so act and the decision went against him, he must accept the verdict of the Committee.

We wish next to say a word on "disqualification." In our experience those judges who do not act at two, three, or half a dozen shows only a year, but at dozens, are exactly those who are the most cautious in writing that (to the exhibitor) humiliating word "disqualified" on a card. They only do so when they have evidence of intention to deceive on the part of a competitor, then they do it in bold letters. When an exhibitor has, by accident or oversight, put himself beyond the conditions, the milder formula is used, "not in accordance with the schedule,"

thus stating a fact without conveying a reproach. They are, indeed, often more lenient still with exhibits, and do what the York schedule enjoins in italics in reference to incorrectly named specimens—namely, "*pass them over without observation*," and leave the showmen (who have not sought to do wrong) to find out the reason why. If an exhibitor is "in accordance with the schedule," whence comes the right of disqualification?

As to the admissibility of the particular Apple in the class above specified, that is, and must be, a question of individual opinion. If a gardener regularly include it, in the discharge of his duty, in a dessert, as we know it has been many times and oft so employed, we cannot say he does any wrong in including a dish of it in a collection of dessert fruits at a show, if not specially excluded. We have seen it included and weaken a collection without causing disqualification, as there was no infringement of the terms of the schedule.

We have previously said that with two lists of Apples only we should place Emperor Alexander in the cooking section; but at the same time, as it is unquestionably employed in desserts, we should not disqualify a collection for containing it if within the conditions, but should "point" it "low" in comparison with superior varieties.

To a greater extent than ever the imposing appearance of fruits is considered an essential element in desserts. Tables have to be made beautiful with fruits as well as with plants and flowers, as leading fruiterers know quite well. Very small Apples and Pears, however good, are relegated to side tables; the delicious Frontignan Grapes have been ousted by the finer-looking but far inferior Alicantes and "Colmans," and the Royal Horticultural Society has condemned the many miserable little Melons seen at shows by imposing a minimum circumference of 15 inches.

It was because of the inclusion of the Apple in question in many desserts, mainly for its beauty, that Dr. Hogg in the last edition of his "Fruit Manual" admitted it as "desirable" on that account on the dinner table; though stating it to be more of a culinary than a dessert fruit. No person living has given so much attention to the subject of fruit, and no one has described so many varieties, their history, and their uses so accurately. It is true that a certain D.D. has gone out of his way, in a contemporary, to indulge in a cheap sneer at the work of the venerable Doctor, who has by sixty years of study and research done something to enlighten even this doctor of divinity, who found his peculiar exercise congenial at this particular time; but it will do no harm—at least to *our* Doctor.

We have consulted Dr. Hogg on this Emperor Alexander case. "It is but an old question," he says, "that has cropped up again because of a case happening to get into print, and any person who regularly uses any fruit in desserts is justified in exhibiting it as a dessert fruit, no matter who may object to it, always provided that it is not rendered ineligible by special conditions, which any society has a right to impose. It then rests with the Judges to estimate its value, but disqualification can only properly follow on some infringement of the terms of the schedule by which an exhibition is governed."

The York Judges did what some other good men would probably have done, but what many others would not. But they acted honestly, with an evident desire not to deal harshly, but the reverse, with a collection they felt bound to disqualify on the grounds stated. They were convinced they were right in their views; the Committee loyally sustained them, and there the matter ends. It is clear that Mr. Riddell had no "intention to deceive," and if the Judges had been acting under the R.H.S. code, they are far too intelligent to have "disqualified" with paragraphs 8 (page 6) and 38 (page 12) before them. But they were bound by neither that nor any code, and exercised their discriminatory and discretionary powers, as evidently desired by the Committee.

Given precise terms of guidance, we know enough of the professional ability and high sense of honour of the Judges in question to enable us to say that we should not hesitate a moment in entrusting any garden produce of ours to their examination and for their decision, and their verdict would be accepted. They (also Mr. Riddell) will have done good service if some definite and authoritative line of action should be formulated as the result of this discussion, and we hope with Mr. McIntosh that such will be the case. Though no harm has been done, as no one believes Mr. Riddell would attempt to do anything wrong, and the desire of the Judges was evidently to do justice, we think the word "disqualified" was rather too strong to use under the circumstances.

We should like to make it clear that we have no reason whatever to suppose if the matter had been submitted to the R.H.S. the decision

would have gone against the York Judges; indeed, we are almost certain it would not without a very sharp struggle, if then, and it will be well if neither side is too confident about being the victor.

APPLES.

CLASSIFICATION.

I QUITE agree with Mr. W. R. Raillem's views (page 13) that there should be three lists of Apples. If we are to have a classification for the guidance of exhibitors, judges, and societies in general, it should be as nearly perfect as it is possible to make it in regard to the respective merits of varieties for dessert and culinary use. This perfection cannot be arrived at with only two lists, as some varieties are equally entitled to be placed in either, and such lists would simply become a dead letter or useless, except when societies accepted them as a standard of authority. The likelihood of all societies accepting such is, I think, very doubtful.

The "select" lists at present in existence serve no useful purpose outside that for which they have been framed, but rather lead to confusion and arbitrary proceedings outside the area of their legitimate influence. If two lists only are compiled, and these generally accepted by societies as a guide to exhibitors, the broad views by which judges should be influenced would be lost, even in cases where the lists had no bearing, by rigidly confining the varieties to their *enforced use*, and consequently irritation would be augmented.

Let the R.H.S. give us something worthy the reputation it bears by tackling the question in its broadest sense instead of merely providing us with special lists for a special purpose. In relegating the respective varieties to certain uses, colour certainly should not be lost sight of in selecting those for dessert, as it equals flavour on the dining-room table; in fact, in private establishments appearance is often more highly prized than quality in dessert. To wit, who would prefer Duchess of Buccleuch to Duke of Buccleuch Grapes on their table? By way of obtaining the general opinion of gardeners on the question of "two" or "three" lists of Apples, I would suggest that the Editor ask all to send him their choice in as few words as possible. If this proposition meet with approval, and is taken advantage of, I would then say take the same means to ascertain the value of colour in dessert. This accomplished, and the facts placed at the disposal of the R.H.S., its members would see what was desired, and guide them in their honourable and responsible office in catering for our requirements.—R. C. H.

[Our correspondent's experience is certainly very great as a provider of dessert fruits for the acceptance of persons of very high rank indeed among our aristocracy. We cannot invite the lists suggested. They would be too voluminous. We are all in favour of something so concise on the subject that it can be inserted as a note occupying about an inch of space in small type in any schedule—e.g., "The following T.K. varieties are eligible (or not eligible) for the dessert classes." A small committee of experts could formulate such list in an hour for the sanction, subject to amendments of a General Committee and the Council of the Royal Horticultural Society.]

ROYAL HORTICULTURAL SOCIETY

DRILL HALL, JANUARY 12TH.

THE first meeting of the year 1897 of the Royal Horticultural Society was held in the Drill Hall on Tuesday, and was an unqualified success. If judgment could be based upon this one meeting a splendid year might be expected, and it is hoped that the augury of the first meeting may be fulfilled. Orchids were, as a whole, of great beauty and fairly diversified, while fruit was well represented. The exhibits before the Floral Committee were not numerous, but of fine quality, especially the Cyclamens from Major Joicey and the fragrant Freesias from N. L. Cohen, Esq.

FRUIT COMMITTEE.—P. Crowley, Esq. (in the chair); with Rev. W. Wilks, and Messrs. G. Bunyard, J. Cheal, T. G. Miles, G. W. Cummins, A. F. Barron, J. Willard, J. H. Veitch, T. J. Saltmarsh, A. Dean, J. A. Laing, W. Bates, G. Woodward, W. Farr, C. Herrin, H. Balderson, G. Wythes, F. Q. Lane, G. H. Sage, G. Reynolds, R. Fife, T. F. Rivers, C. Ross, and J. Wright.

As will be seen, there was a considerable attendance of members, as is usual at the first meeting of the year, but also, as is usual, a limited number of products sent for examination. Mr. John Crook, Forde Abbey, Chard, sent well-coloured fruits of Damelow's Seedling Apple, and a vote of thanks was awarded. A member thought they were good enough for dessert. Messrs. J. Veitch & Sons, Ltd., sent fruits of their Standard Bearer Apple, good size, inclined to be conical, greenish yellow, very firm, good for cooking, and of fair eating quality. The award of merit granted in 1893 was confirmed. Messrs. Veitch also sent specimens of *Belle de Boskoop* Apple, large, flattish, russety, with tender flesh and of good quality. It was thought they had a general resemblance to well-grown fruits of *Hambledon Deux Ans* (award of merit). The same firm further sent *Fraise d'Hoffinger*, a beautiful Apple in appearance, and will probably be grown for exhibition purposes.

Mr. Ward, Stoke Edith, Hereford, sent a seedling Apple like Lady Sudeley in appearance, but inferior in quality. Mr. G. Fulford, West Park, Damersham Gardens, sent fruits of *Doyenné d'Hiver* Pears, very fine specimens of *Easter Beurré*; and a vote of thanks was accorded. Mr. H. J. Sheppard, High Street, Bedford, sent Apple Sheppard's Nonpareil, which was determined to be *Scarlet Nonpareil*.

Mr. G. Wythes sent a box of Tomatoes *Syon Prolific* (Ham Green × Duke of York), very fine and well-coloured fruits; and a cultural commendation was accorded.

Preserved Dates were placed on the table by Mr. J. Wright, as received by him from Lionel Sanders, Esq., one of Her Majesty's Judges in Egypt. Mr. Sanders expressed his surprise that they were not known in England. They are eaten at dessert like preserved ginger, and are very rich, with a distinct and agreeable flavour. A vote of thanks was accorded with an expression of approval of the conserve.

Messrs. G. Bunyard & Co., also Messrs. J. Veitch & Sons, sent extensive and excellent collections of Apples, for which silver-gilt medals were unanimously awarded; and a silver Banksian medal was adjudged to Messrs. Cannell & Sons for a large and excellent assortment of Potatoes.

The Chairman in courteous terms thanked the members for their services during the past year, and those present conveyed unanimous thanks to the Chairman and Secretary for the pleasant and effective manner in which they had discharged their duties, conveying also best wishes for the future.

THE VEITCH PRIZES FOR FLAVOUR.—*Pears.*—Mr. G. Woodward, The Gardens, Barham Court, first with *Winter Nelis*; Mr. Owen Thomas, Royal Gardens, second with *Ne Plus Mearis*. *Apples.*—First prize, Colonel Brymer, Ilslington House, Dorchester, with *Cox's Orange Pippin*; second, Mr. Woodward, gardener to Roger Leigh, Esq., with *Blenheim Pippin*.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with Messrs. C. T. Drury, H. B. May, H. Herbst, R. Dean, R. Owen, G. Stevens, J. Hudson, J. Jennings, R. B. Lowe, C. E. Pearson, J. Fraser, C. Jeffries, J. T. Bennett-Poë, C. E. Shea, C. Blick, G. Paul, H. S. Leonard, H. Turner, J. Fraser, and J. W. Barr.

Messrs. T. Cripps & Son, Tunbridge Wells, sent specimens of *Hamamelis arborea*, and of *Violet Amiral Avellan*, a good dark single variety. Messrs. W. Cutbush & Son, Highbate, arranged a group of *Cyclamen persicum* flanked by *Ericas melanthera*, *hyemalis superba*, and *hyemalis alba* on the one side, and by *Aucuba japonica vera* in fruit on the other (silver Banksian medal). Messrs. W. Paul & Son, Waltham Cross, sent a large plant of *Crataegus Carrieri*, carrying large numbers of orange red berries of large size. Messrs. J. Veitch & Sons, Chelsea, sent a box of their hybrid *Rhododendrons*.

Mr. F. J. Thorne, gardener to Major J. J. Joicey, Sunningdale Park, Ascot, staged a collection of superb *Cyclamen persicum*. The plants were in 5-inch pots, and were only fifteen months from seed-sowing. The foliage was stout and beautifully marbled, while the flowers were large and of the best colours. Some of the flowers were large, others small, but all perfect in their respective varieties (silver Flora medal). Specimens of a hybrid between *Senecio multiflorus* and the garden *Cineraria* were staged from the Botanic Gardens at Cambridge. The *Cineraria* was strongly in evidence in the colour and size of the flowers.

Mr. J. May, Twickenham, sent a collection of *Cyclamen persicum*, amongst which some splendid varieties were noticeable (silver Flora medal). Messrs. H. Cannell & Sons, Swanley, staged some handsome *Primulas*, including *Eynsford Red*, *Eynsford Yellow*, *White Swan*, *Swanley Blue*, *The Queen*, *Cannell's Pink*, and several others in fine form (silver Flora medal). Mr. A. Sturt, gardener to N. N. Cohen, Esq., Englefield Green, sent a group of *Freesias*. The plants were splendidly grown and profusely flowered (silver Flora medal).

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); with Messrs. J. O'Brien, T. W. Bond, D. B. Crawshaw, R. B. White, H. M. Pollett, H. Ballantine, F. Hardy, J. T. Gabriel, G. W. L. Schofield, W. H. White, W. H. Young, H. J. Chapman, E. Hill, J. Jacques, W. Cobb, J. Douglas, and S. Courtauld.

Messrs. F. Sander & Co., St. Albans, arranged a bright exhibit of Orchids, amongst which the most conspicuous were *Odontoglossum Harryanum*, *O. Rossi majus*, *Lycastes*, and *Dendrobiums*. Mr. H. Ballantine, gardener to Baron Schöder, The Dell, Egham, exhibited a few Orchids of magnificent quality, and in the best of health (silver Flora medal). Messrs. J. Veitch & Sons, Limited, Royal Exotic Nursery, Chelsea, signalled the first meeting of the new year by arranging some splendid Orchids, comprising *Laelio-Cattleyas*, *Cypripediums*, *Epidendrum elegantulum*, and several others (silver Flora medal).

F. Hardy, Esq., Ashton-on-Mersey, staged a few Orchids, conspicuous more for quality than for quantity. Messrs. H. Low & Co., Clapton, staged a few Orchids (silver Flora medal). Mr. W. H. Young, Orchid grower to Sir F. Wigan, East Sheen, sent some varieties of *Laelia autumnalis* and a spike of *Cymbidium grandiflorum*. Mr. W. H. Lees, gardener to F. A. Bevan, Esq., Trent Park, Barnet, arranged a strikingly beautiful collection of *Odontoglossum crispum* and *Pescatorei*; the plants were grandly grown and staged (silver Flora medal).

CERTIFICATES AND AWARDS OF MERIT.

Cattleya Loddigesi superba (H. Ballantine).—A beautiful form with rose coloured flowers (award of merit).

Cyclamen papilio (De Laughe).—The flowers of this are variously coloured, and are somewhat flat with fimbriated edges (award of merit).

Cypripedium Lebaudyannum (L. Linden).—A long wavy petalled hybrid; colour green at the base, with brown spots, and brown at the extremities. The dorsal sepal is pale green, striped and spotted brown. The pouch is green, flushed brown (award of merit).

Cypripedium Lilian Greenwood (H. Greenwood).—The petals of this are claret with chocolate spots, the dorsal sepal being of the same shade, with the spots at the base. The pouch is claret red (award of merit).

Lælia Lucy Ingram (T. W. Bond).—A hybrid between *L. purpurata* and *L. Perrini*. The sepals are pure white, the petals delicate rose, and the lip rich maroon (award of merit).

Mormodes labium luteum (E. Hill).—Pure yellow, as inferred by the name, is the colour of this variety (award of merit).



YELLOW MADAME CARNOT—SIMULTANEITY AND REVERSION.

THERE are now three yellow sports from this variety—Wells' sport, No. 1; Jones' sport, No. 2; and Owen's sport, No. 3. All originated during the same month and the same year, in three different localities. They have all three flowered and shown a decided yellow shade. The one I am in possession of I mean to thoroughly prove before offering it to the public at any price. Should I have to refund, as in the case of White Vivand Morel and two others I could name, growers would fight shy of me in future. I have known, after two and three years' trial and careful selection of cuttings to fix the sport, a great portion of the stock to revert. The plant that produced Mrs. S. Coleman produced Princess of Wales, Miss Haggas, Matthew Russell, and Mrs. Heale, all in the same year and from same rootstock. What may we expect from the three sports during 1897? George Haigh, sport from Robert Petfield (the latter a seedling from Princess of Wales) reverted in several places after two years' trial. Again, Lord Alcester has reverted with me, and produced the whole of the Queen family bar the bronze sport. Such freaks are enough to make one cautious.—ROBT. OWEN.

BIG CHRYSANTHEMUMS.

THE *Gardeners' Magazine* says, "We have heard many complaints of the large size of the Chrysanthemum blooms shown in London, and at Hull, Birmingham, Edinburgh, and other centres, during the past season; but it would appear that these blooms were mere pigmies as compared with those exhibited at one of the smaller towns in Scotland. A correspondent sends us a cutting from a Scottish paper of a few weeks since, in which appeared a report of the Chrysanthemum show held at Kilmarnock, and asks whether we have seen blooms equal to those which the reporter states were exhibited there, and we have to confess that we have not. 'The exhibition,' we are told, 'was of excellent quality, and excelled any previously held by the Society;' and this we can readily believe. We are also informed that 'in the gardeners' classes for pot plants the principal prizes were won by Mr. Andrew Kerr, Bellfield, some of whose blooms measured 5 feet across.' We have, unfortunately, no information with regard to the dimensions of the plants, or the pots in which they are grown; or of the varieties they represented. We are also left in some doubt as to whether the blooms which 'measured 5 feet across,' borne by Mr. Kerr's plants, were the largest in the show, for 'in the class of eighteen blooms, Japanese Chrysanthemums, twelve varieties, remarkable for colour, size, and height of bloom,' Mr. Kerr only succeeded in obtaining second place. We are sorry these remarkable specimens were not shown on the occasion of the N.C.S. Jubilee, and trust that we shall have an opportunity of seeing the next plants with blooms that measure '5 feet across.'"

THE N.C.S. JUDGES.

"A MEMBER of the N.C.S." does not write in a spirit of fair play when he adduces spite and vindictiveness as the motive for my calling attention to the judging of the principal classes at the second exhibition (November 5th) of the N.C.S. I am well aware of the fact that it is very easy to criticise other men's work, and judges of Chrysanthemums oftentimes get their share of criticism. I have no patience with the disappointed exhibitor who will make a fuss over nothing.

Had "A Member of the N.C.S." been in the vicinity of the principal class for incurved he would have given me credit for something more than "spite and vindictiveness." Scores of the best exhibition growers of the day, including friends of the Judges, protested against the awards, many stating that "the bad judging was apparent yards away from the blooms." To show that I am not alone in a protest, an editorial note to my previous letter informs us that others had written on the matter, but too strongly for publication. Again, did not some of the press reports inform us that the awards did not give general satisfaction?

"A Member of the N.C.S.," whilst admitting that trade growers should not judge in classes in which any blooms they may have special interest in are shown, points to the National Rose and other societies as having trade judges, as if that makes what he thinks is wrong to be right. These societies have nothing to do with the question, but I contend that if a trade grower puts plants into the hands of an expert to grow, and the said trade grower holds the entire stock of the variety, which is yet undistributed, he is naturally desirous that this variety should have prominence in a first prize stand—in fact, he has more monetary interest in the exhibit than the exhibitor himself. I do not suggest he would knowingly do what is wrong; on the contrary, I will give him

credit for doing what he feels to be exactly right; but, all the same, he is placed in an unpleasant position, and such as numbers of persons think he ought not to be called upon to occupy.

Will "A Member of the N.C.S." inform us when such a case has been known of a trade judge officiating in classes in which his own new varieties were included at exhibitions of other floral societies? I am taken to task for singling out the N.C.S. for the criticism in respect to the appointing of judges. There is no need to select so many judges from the Committee, for there are plenty of equally good growers outside of the Committee as there are in it; and when all the Chrysanthemum world is taking interest in the champion classes, no opportunity should be given for anyone to say that any of the judges had the slightest interest in any of the exhibits. If my critic think they may have such interest, and that the principle is sound, let him say so. It will be better than attributing "spite and vindictiveness" to one whose motives may even be as pure as his own.—FAIR PLAY.

NEW CHRYSANTHEMUMS—DECORATIVE VARIETIES.

(Concluded from page 5.)

CULTIVATORS are recognising the value of this section. Beautiful as are the large exhibition blooms, the smaller flowering graceful types are really more valuable to the decorator. The following new varieties are deserving of attention:—

Surprise.—This is an October flowering variety of the richest plum purple in colour. The florets are narrow, reflexed, and drooping.

Golden Ball.—Known also as Golden Elsie. It is a sport from the primrose coloured Elsie, having all the characteristics of that free-growing and flowering variety. Golden yellow in colour.

SINGLE FLOWERED VARIETIES.

So popular have the free flowering types of single Chrysanthemums become that any addition possessing merit is eagerly sought after. The following I can recommend, having noted them during a tour of the shows in various parts.

Jenny Wren.—The reflexing florets are semi-drooping, rich chocolate purple in colour, graceful in form.

Alphonso.—This is blush white, and the flowers are large.

Miss M. Rennie.—Cinnamon is the ground colour, which is flushed with bronze.

Rose Pink.—As the name implies, the colour of this is a rosy pink; excellent.

Sarah Wells.—The narrow florets of this variety are somewhat open; rosy white.

Miss Brown.—Yellow, flushed, spotted, and striped with crimson is the colour of this.

Snowdrift.—As its name implies, this is pure white, beautiful in shape of floret; a graceful semi-drooping variety.

Ewan Cameron.—A blush white with broad, semi-drooping florets.

Mary Williams.—This is related to Admiral Sir T. Symonds, judging from the style of flower. The colour is yellow, edged red.—E. MOLYNEUX.

A FEW SCRAPPY CHRYSANTHEMUM NOTES.

I FIND there are a few persons not so far "gone" in the craze for bigness as to worship at the feet of that great idol—"size." With the exhibitor everything else seems to be cast on one side for "size," and whatever new variety is placed before the critics, it may possess all the attributes of beauty, may be of the most refined shape, display colours the most tender in various shades harmoniously mingled; these and every other merit you can mention are all cast away to the four corners of the earth if not built up to the magnitude of the idol—"size." Is this as it should be?

Mr. Molyneux's annual selection. I look for this with unabated interest, carefully noting his remarks for comparing with my own, and only feel disappointed when at the bottom I see "To be continued." He is too far away for us to shout to him, as is sometimes done to a public speaker, "Go on," so we must anxiously wait for the next edition.

But to go on. "S., Yorks," and "W. S., Wilts," have drawn out my pen, for I am of the opinion that far too little attention is given to the decorative class of Chrysanthemums, and I feel that many varieties of the most exquisite form are swept under that "Juggernaut car"—"size." I quite endorse all that is said about Niveus as being a real gem for late cutting. Mdlle. Thérèse Rey is very good white, but too weak in the stem. No mention is made of the sturdy grower Princess Victoria, creamy white, a grand variety for cut flowers at Christmas or after. Potter Palmer, a pure white, of large size, is also late, and of good habit. New Year's Gift is another large white, with long broad florets of good form, coming in as its name indicates with the new year.

Leon Frache is certainly a very good pink, but one of later introduction will come to the front as soon as its merits as a late bloomer are better known—viz., Madame Felix Perrin, a soft rose, free grower, and erect flowers. I can recommend to "W. S., Wilts," a good dark sort for Christmas—viz., Elmer D. Smith, a rich deep crimson, not half enough known. L. Canning was condemned by me, but following "W. S.'s" hint it will now get reprieve for one year to see how second-year plants succeed.

Madame Carnot for market is a gem, and has a good companion in Mdlle. M. A. de Galbert, pure white. Souvenir de Petite Amie is no doubt the "beau idéal" of a decorative or market plant. Simplicity, of recent introduction, a pure white, extra large flower, in the way of Niveus, of

dwarf habit, will become popular in the near future for either exhibition or decoration. Emily Silsbury, pure white, a very easy grower, is already receiving the attention of market growers, but is rather early. Lady Byron and Lady Esther Smith, both pure white, new last year, are also being grown largely. Surely here we have plenty of whites; but if Baron A. de Rothschild does not prove a useful market variety I—but stop. I am only a "probationer," and my article will have to be



FIG. 9.—MONS. ERNEST FIERENS.

"deleted" I fear. However, I venture to pass on to the yellows and others.

Golden Gate is a splendid variety for Christmas blooms. Thomas Wilkins is very good, but if you want a bronzy shade try E. G. Hill, which is a good late. Tuxedo is a grand orange, a strong grower, coming in December and January. For a bright yellow nothing can yet compare with W. H. Lincoln. Wilfred Marshall is a fine bold flower of a lemon yellow tinge. Of newer varieties Edith Tabor, canary yellow, must become a favourite for market. Australian Gold has also the habit of growth required for market work, and Modesto is without doubt the most brilliant yellow in existence, a good grower, and sturdy habit, meeting every requirement in a decorative plant.

Well, Mr. Editor, there are a few more I should have liked to say a word for, which you will see in the box of blooms sent to you. Those exhibition chaps have had all the say in our paper for some months, but their big game is all slaughtered now, and their monster idols in the dust, so such like as your humble scribe can possibly come in with a few late blooms.—T. G., Devon.

[Devon is not considered a cold late county, and Devonians have done, are doing, and will do, good service in the floral world. Though the weather has been mild, if not "balmy," of late in the West, this free lance has evidently no lack of pure and bright Chrysanthemums, or he could not have sent us about forty blooms in fifteen varieties—mostly yellows, but one golden bronze, his favourite, E. G. Hill, highly effective. The purer and pale yellows include Charles Blick, rich; Owen Thomas, fine; Wilfred Marshall, attractive; Duchess of Wellington, Le Prince de Bois, Duchess of York, Challenge, Jeanette Sheeham, pale; and Philadelphia, sulphur. Blush-tinted are represented by Louise, Princess May, and Madame Calvat, and whites by Madame Alfred Chatin and Miss Maréchaux. Now the "pen is drawn" it can run on, and the "chap" behind it need not trouble himself about "deletion."]

A TOUR ABROAD BY A HAPPY TRIO.

(Continued from page 3.)

THE steamer drew up to the side of the Ostend quay, the captain shouted his orders in what I took to be Flemish, the seamen holloed, and the passengers soon began to crowd round the gangway preparatory to disembarking. Fortunately I had made friends with the steward, and had discovered he was a Ghent man. He was delighted to be of service to us, finding we were on the way to his native city, and without more ado he set off and brought us a couple of porters to land our boxes and see them into the train for us. But this was easier said than done. A tall, heavily built official put the usual question that first strikes the foreigner's ear, *Avez-vous quelque chose à déclarer?* which being interpreted means, Are you a smuggler? and then we knew we were face to face with the Customs House Officer. The flower boxes were objects of mystery. I explained they only contained cut flowers for the grand Chrysanthemum show at Ghent on the following day. He seemed dubious, as if Chrysanthemum leaves were used for cigar making, and finally our flower boxes had to be ruthlessly broken open where the lids did not give easily, and inspection allowed. I found he was searching for phylloxera, but as the blooms had no roots the boxes were passed, fastened up afresh, and put in the carriage.

This interesting performance took place about three o'clock in the morning, and a raw, uncomfortable morning it was. Having a quarter of an hour or so to wait before the train started, we had a cup of hot coffee, and then started off. Then we stopped, and I could not help thinking of the Dean of Rochester's funny story about a cow on the line. But we ultimately did arrive at Ghent a little before 5 A.M.

We got outside Ghent station at the earliest possible moment, and the porter called a cab, and when we found the driver was none other than Honorez—genial, buxom old Honorez, the English-speaking cabby who acts as guide, philosopher, friend and interpreter to so many English and American visitors—our joy was unbounded. Gentle reader, if you have been to Ghent you know his "gee-gee." Everybody does; it is so wonderfully and fearfully made, but it can travel and whisk round corners in a way that is positively alarming to a tired, timid

traveller. And the cab! A splendid vehicle, and Honorez's own property; but the only fault a tall man can find is that it ought to have a sliding roof, that is, of course, when there is no luggage on the top. A few minutes brought us to the door of the Hotel de la Poste, and after a little rest came down to breakfast fresh as Daisies. Honorez, true to the tick of time, was awaiting us, and we reached the Casino in safety, and with a long-drawn sigh of relief I saw those boxes of flowers carried into the exhibition hall. A hearty welcome awaited us. Mons. Ernest Fierens (fig. 9), the Secretary of the Society, came forward in his usual genial manner to greet us and to make such introductions as were needful; the Comte Kerchove de Denterghem, Mons. de Meulenaere (fig. 10), his son, Mons. Ed. Pynaert and his son, Mons. Van Houtte, Mons. Van Hal, Mons. Stepman, and many others whom I already knew, being already on the spot. We soon explained the object of our coming with so much luggage, and the greatest facilities were offered for the effective arrangement of our trophies. Mr. Jones and Mr. Bevan being practical men, were soon busily arranging the blooms, and as there was a good run of tabling provided for the exhibits, they were ere long placed in the glass bottles provided, then labelled and placed in position.

The flowers staged in the name of the N.C.S. consisted of some grown by the following members—viz., Messrs. Brookes, Turk, Martin, Skeggs, Sandford, Jukes, Bevan, and Page, and formed a good representative collection of the different sections. The grand Madame Carnot, which was grown by Mr. Page, was particularly conspicuous, and specially mentioned by the jury, while the entire exhibit (the first of its kind shown in the name of the N.C.S.) was awarded a silver-gilt medal *encadrée*—one of the prettiest things I know, being an ordinary medal of the Royal Agricultural and Botanical Society of Ghent set in a Laurel wreath bordering with a ring attached, and measuring altogether 2½ inches in diameter. The inscription is as follows:—"Awarded to the National Chrysanthemum Society of London for a group of cut Chrysanthemums, November 15th, 1896." Messrs. Cannell & Sons of Swanley also contributed a collection of cut blooms, as did Mr. Jones. Both of these exhibitors were awarded a similar prize.

The work of judging is not left in the hands of one or two persons, as is customary in England; but a jury, as it is called, is appointed, consisting of a large number of gentlemen, and these not actual residents in Ghent. Besides Chrysanthemums there was a large display of Palms, Ferns, foliage, and other decorative plants, and these with the Chrysanthemums displayed with exquisite taste, and I certainly think that some of our organisers of shows would do well to run over to Ghent one November and see for themselves what is possible to be done and how to do it in the way of picturesque arrangement.

Before commencing operations each member of the first section of the jury, of which I had the honour to be appointed President, was supplied with a copy of the schedule and of Mr. de Meulenaere's excellent Chrysanthemum catalogue for reference. This gentleman, besides being a most enthusiastic amateur cultivator and a large exhibitor of finely grown Chrysanthemums at the Ghent exhibitions, is also a literary worker of international repute. His catalogue of Chrysanthemums and subsequent supplements are monuments of patient, untiring, and trustworthy zeal, and contain very much information of a detail nature, such as dates of introduction into commerce and raisers' names, which cannot be obtained from any other source, and which have been officially recognised both by the Society at Ghent and by our own N.C.S. here in London.—C. HARMAN PAYNE.

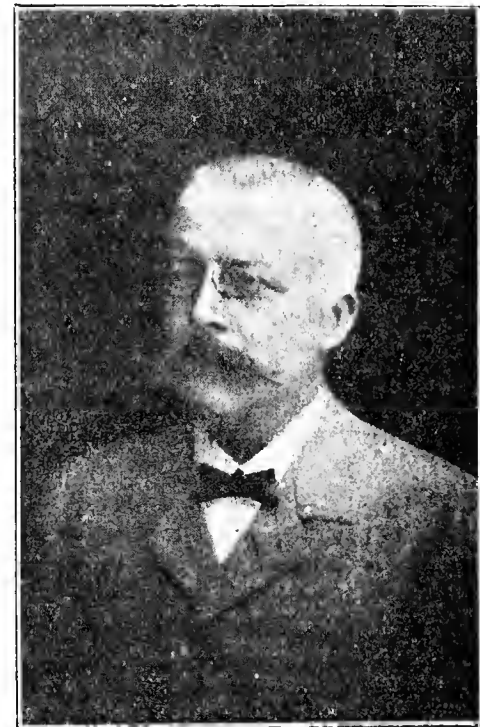


FIG. 10.—MONS. O. DE MEULENAERE.

(To be continued.)

THE CLEMATIS DISEASE.—Many Clematis growers unfortunately know that the beautiful variety Jackmanni is liable to die off suddenly by an attack of fungus near the root, which sends its ferment through the whole upper portion in precisely the same manner that fire blight does in trees. This seems to occur more frequently when the plants are about one or two years old. It would be very interesting to know whether anyone who has a plant older than three years that has suffered. If it be a fact that the disease is entirely confined to these young plants it would be encouraging to lovers of this fine flower to replant when one has died. There is scarcely anything more beautiful than this variety of Clematis, and many growers would not mind planting a few times, if they felt sure that after reaching a certain age the plant would have immunity.—("Meehan's Monthly.")



WEATHER IN LONDON.—Rain has fallen every day for the past week, though not always heavily. From Thursday to Sunday there was an almost incessant downpour, which led to the flooding of several houses in the low-lying suburbs of South-west London. Neither on Monday, Tuesday, nor Wednesday of this week was the rain so heavy, but it fell at frequently recurring intervals.

— **THE LATE MR. A. WATERER.**—The personal estate has been valued at £128,736 6s. 11d. of Mr. Anthony Waterer of Knaphill Nursery, Horsell, Surrey, nurseryman, who died on November 16th last, aged seventy-four years. Probate of the late Mr. Waterer's will, which bears date February 5th, 1895, has been granted to his son, Mr. Anthony Waterer, to whom the testator left all his real and personal estate absolutely.

— **BUTTONHOLES AND 'BACCA.**—A provincial florist, seedsman, and nurseryman describes as follows his method of trade association and expansion:—"I am making my business more profitable than ever. I bought a tobacco business, and the two work well—buttonholes and cigars. I think the seedsmen and florists will have to mix a little, for with fishmongers and ironmongers selling flowers, chemists selling seeds, and wholesale houses selling retail, it requires seedsmen and florists to do a little thinking and return the compliment, which in my case pays."

— **A FINE HOLLY.**—While passing on the high road from Sandwich to Canterbury the other day my attention was directed to the finest specimen of berried Holly I have ever seen. The tree, which was growing in the little front garden of an old-fashioned cottage by the wayside, was conical in shape, with a bare stem of about 5 feet from the ground. The tree has evidently been kept carefully trimmed, as it was of perfect shape, tapering away to a point at the top. Without the berries there would have been nothing particularly noticeable about it, but so thickly were these clustered all round the tree, and so brilliantly scarlet were they in colour, that one could not help stopping to admire the specimen. In the sunlight the berries, which were of extraordinary size, seemed to flash with an exceptional brightness, and never before have I seen anything so beautiful in the shape of a common Holly.—H.

— **LUCULIA GRATISSIMA.**—While passing through the flowering house at Kew a few weeks ago I was struck with the beauty of a large specimen of this old-fashioned flowering shrub. One rarely meets with it nowadays, yet what could be more charming in the dead of winter than a plant covered with its delicately tinted trusses? Here we have its chief qualification. Summer-blooming shrubs are plentiful enough, but in the *Luculia* we have one that comes in at a time when flowers are scarce. For conservatories and other houses where it may be permanently planted it is well suited, and it seems a pity that such a well-tried shrub is not more largely grown. Flowers for winter is the never ceasing cry, and yet this is only one of the many that could be mentioned, which if grown would fill a void too often noticeable.—G.

— **RATING OF GLASS HOUSES.**—An important appeal affecting the position of market gardeners under the Agricultural Rates Bill of last session has been heard at West Sussex Sessions. At Worthing there are about sixty market gardeners who grow Tomatoes, Grapes, and other produce for market under glass. The overseers had returned these holdings as market gardens, and therefore subject under the Act to a deduction of half the rates. The local surveyor of taxes declined to accept them as market gardens, and the Union Assessment Committee upheld him, on which this appeal was lodged. The appeal was defended by the Board of Inland Revenue, on whose behalf counsel contended that the Agricultural Rates Act, which was passed for the benefit of distressed agriculture, expressly exempted agricultural buildings from its operation, and that the glass houses in which the appellants' fruit was grown were buildings within the meaning of the Act, and therefore not liable to any relief from taxation. The court, however, upheld the appeal, with costs.

— **CARDIFF GARDENERS' ASSOCIATION.**—The opening meeting of the 1897 session was held on Tuesday, January 5th, in the Temperance Club. Alfred Thomas, Esq., M.P., the President, occupied the chair, when Mr. W. W. Pettigrew gave a lecture on the "Process of Fertilisation," illustrated by limelight. This lecture also opened a botany class in connection with the Society. The lecturer was closely followed by all present, who numbered between sixty and seventy members, of whom twenty-four joined the class.

— **DEVON AND EXETER GARDENERS' ASSOCIATION, SPRING PROGRAMME.**—January 20th, Mr. R. Hodder, "Manures for Garden Soils." February 3rd, Mr. J. Mayne, "The Forcing of Seakale, Asparagus, and other Vegetables." February 17th, Mr. Thos. Brockbank, "Orchids and their Cultivation." March 3rd, Mr. J. Weeks, "Cinerarias and Primulas." March 17th, Hyacinth and general spring show; entries close 13th March; schedules on application. March 31st, Mr. Fred C. Smale, "Flower Shows—Past, Present, and Future."

— **TORQUAY DISTRICT GARDENERS' ASSOCIATION.**—The members of the above Association held their fifth annual dinner on the 6th inst. at Giles' Exeter Hotel, Torquay. About seventy sat down, Dr. R. Hamilton Ramsay presiding, and Mr. W. B. Smale occupying the vice-chair. Commander A. S. Phillpotts, R.N., M.P., was also present. Toasts were given, and an excellent musical programme, arranged by Mr. W. A. Masterman, was carried out. A most enjoyable evening was spent. The general arrangements were made by Mr. F. C. Smale (Hon. Secretary), and the tables were beautifully decorated with plants and cut flowers by Messrs. F. Peacock and S. Vallance.

— **ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION.**—The annual meeting of this Association was held at Warburton's Hotel, Newport, on Saturday, January 9th, when there was a large attendance of members present. The balance sheet and report were adopted. The former showed the Association to be in a good financial condition, whilst the report gave a favourable account of the work done by the Association, from a gardener's point of view. Mr. J. Merritt, gardener to H.R.H. Princess Beatrice, Osborne Cottage, I.W., staged fine collections of Princess of Wales and Princess Beatrice Violets. Several of the individual blooms measured close upon 1½ inch in diameter. For this excellent exhibit Mr. Merritt received the Association's certificate of cultural merit. Mr. W. Matthews, of Carisbrooke Cemetery, staged a fine *Chrysanthemum* bloom of Mrs. C. E. Shea. The next lecture is on February 6th, when Mr. H. J. Jones, of Lewisham, will be the lecturer on "*Chrysanthemums*." —S. HEATON.

— **WAKEFIELD PAXTON SOCIETY.**—There was a large attendance at the meeting on Saturday, January 2nd, Lieutenant Goodyear presiding, and Mr. J. G. Brown being in the vice-chair. Mr. G. Parkin, President of the Wakefield Naturalists' Society, was the essayist, and his subject was "A Chat about Small Birds—Finches," and his remarks were illustrated by a large number of beautifully preserved specimens, and also by photos of nests. A discussion followed Mr. Parkin's discourse. Mr. Eastwood, Stanley, suggested the provision of an aviary in the Public Park, saying it would be a great attraction, and be the means of cultivating the study of birds. The Chairman thought the suggestion of Mr. Eastwood a valuable one. The Government Inspectors deprecated the exhibition of stuffed specimens in elementary schools, and as it was almost impossible for town children to see many of the birds common to the district alive, an aviary was just the thing which was needed in a public park. Several other members agreed with the suggestion, and thought it one which was well worth consideration by the Park Trustees. A cordial vote of thanks was given to Mr. Parkin.

— **THE PHYSIC GARDEN AT CHELSEA.**—This is well-nigh the sole remnant of picturesque old Chelsea left untouched by the brick and mortar fiend. As far as its original purpose goes it has long been useless, although kept up carefully by the Apothecaries' Company. Should the Company give up its charge it will fall into the hands of Earl Cadogan. Its value as a site for building purposes is obvious, but it would be a thousand pities for this, the last of many old English botanic gardens, to be lost to posterity. The names of Sloane, Banks, Linnæus, Miller, and Lindley are all inseparably connected with it, and it is full of plants that are aristocrats of their kind, since they possess a pedigree dating back to the days when their ancestors were first introduced to this country. A contemporary learns that a project for acquiring this spot of many memories is again before the local authorities.

— ADULTERANTS OF VEGETABLE SUBSTANCES.—The Röntgen rays have been employed with good effect by Dr. F. Ranwez in the detection of mineral matters used in the adulteration of saffron. The chief adulterants are barium and potassium nitrate, which in some instances are largely used. His plan, says a contemporary, was to wrap a gelatino-bromide plate in black paper, place the saffron on this, on the same side as the sensitive film, then allow the rays to act for four minutes; developing and fixing afterwards in the usual manner. The foreign matter is sharply indicated in photographs obtained.

— ROYAL METEOROLOGICAL SOCIETY.—The annual general meeting of the Society will be held at 25, Great George Street, Westminster, on Wednesday, the 20th instant, at 7.45 P.M., when the report of the Council will be read, the election of officers and Council for the ensuing year will take place, and the President (Mr. E. Mawley, F.R.H.S.) will deliver an address on "Shade Temperature," which will be illustrated by lantern slides. The above meeting will be preceded by an ordinary meeting, which will commence at 7.30 P.M.

— WEATHER IN THE NORTH.—For a week the weather has been generally dull and cold, with occasional high winds during the night. Saturday was extremely unpleasant, gleams of sunshine alternating with snow showers driving before a biting east wind. There were 5° of frost during the night; Monday afternoon and evening were wet; Tuesday morning misty and cold. The Aconite and Snowdrop are in bloom, Crocuses and Daffodils well above ground, and stage Auriculas are beginning to move, while Violas, white and yellow, have been in continuous flower.—B. D., *S. Perthshire*.

— THE WEATHER LAST MONTH.—December was dull, damp, and milder than usual. The wind was in a southerly direction twenty-two days. Total rainfall, 3.30 inches, which fell on twenty-four days; the greatest daily fall being 0.65 inch on the 4th. Barometer, highest reading, 30.064 on the 27th at 9 P.M.; lowest, 28.468 on the 6th at 1 P.M. Thermometers, highest in the shade, 52° on the 26th; lowest, 25° on the 16th and 24th. Mean of daily maxima, 42.35°; mean of daily minima, 33.35°. Mean temperature of the month, 37.85°; lowest on the grass, 20° on the 16th and 24th; highest in the sun, 79° on the 8th; mean of earth at 3 feet, 40.96°. Total sunshine, 40 hours 55 minutes. There were fifteen sunless days.—W. H. DIVERS, *Grantham*.

— FREE HORTICULTURAL LIBRARY.—We learn that the Corporation of Worthing has recently opened a free library in which the books of horticultural interest which have been got together form a most important and special feature. The commendable action of Worthing in thus recognising the value of horticulture is a most happy venture, and we trust is an example that will soon be followed by other corporations. The majority of our public libraries are very deficient in horticultural literature, in spite of the fact that it is to horticulture that we have to look for assistance in solving that great problem of how to feed the people.

— MIMULUSES.—The beautiful so-called Monkey Flowers, of which there are now such fine strains, self and spotted, are far too seldom found in gardens. Perhaps it will be pleaded in extenuation by gardeners that they cannot grow everything, and that is very true; still farther, such is the demand for flowers that can be used in a cut state, that many beautiful things unsuitable for cutting are neglected. Certainly the spotted *Mimulus* is amongst these little-grown plants, yet its culture is simple, and the flowers produced in the open garden, where the plants may be grown, are really gorgeously coloured and beautiful. *Mimuluses* are very hardy, although not absolutely so, and like cool treatment. Too often at the outset the seed is sown in warmth, and too densely; then the seedlings rapidly become drawn or weak, and rarely indeed do they make presentable plants. My own practice for many years was to sow the seed thinly in shallow pans and on fine sandy soil. This was done early in January, and in an unheated greenhouse. If severe frost came the pans were protected by the aid of newspaper coverings. Still, so hardy relatively are the seedling plants, that frosts did them little or no harm. So soon as large enough the little plants were lifted and pricked out thinly into other pans or boxes, where they would remain a few weeks; then be planted out into a cold frame near the glass, getting ample light and air. Towards the end of April, being well hardened, they were transplanted outdoors about 10 inches apart, where they made dense bushy plants, and bloomed profusely during the early summer, and then outdoors again in the autumn. *Mimuluses* seed freely, the seed being very small. The chief danger in sowing is excessive thickness. It germinates very readily in a low temperature.—A. D.

— DEATH OF MR. J. WEBBER.—We regret to have to announce the death of this well-known Covent Garden salesman, which occurred on the 4th inst. Mr. Webber's establishment in the Central Avenue is one of the oldest in the market, having been carried on originally by his father, and at his death by his mother, in conjunction with Mr. Tayler. The deceased was in his fifty-sixth year.

— ROYAL GARDENERS' ORPHAN FUND.—A meeting of the Executive Committee was held on the 8th inst., Wm. Marshall, Esq., in the chair. Applications were received from thirteen candidates to be placed on the Fund at the next election, and these being found eligible were duly accepted. The Committee, in consideration of this being the sixtieth year of Her Majesty's reign, and the Fund having been established by the gardeners of this country in commemoration of Her Majesty's Jubilee, have resolved to recommend to the subscribers that the whole of the candidates be elected (without ballot) at the next annual meeting, on February 19th. It has been arranged that the annual dinner be held this year at the Hotel Cecil on April 30th, Sir J. Whittaker Ellis, Bart., presiding. The following receipts were announced by the Secretary, the donors being specially thanked—The Altrincham Gardeners' Mutual Improvement Society (proceeds of concert), £30 10s.; H. J. Jones, Lewisham, £10 15s.; Reigate Chrysanthemum Society, £10; Scottish Horticultural Association, £5 5s.; J. H. Vallance (sale of flowers at Bristol Chrysanthemum show), £5 5s.; J. B. Stevenson, Bournemouth (box), £1 9s. 5d.; J. Day, Galloway, Garlieston (box), £1 1s.

— GRAND YORKSHIRE GALA.—On the 8th inst. the annual meeting of the guarantors and life members of the Grand Yorkshire Gala was held at Harker's Hotel, York. In the absence of Ald. Sir Joseph Terry, J.P. (the Chairman of the Council), the Lord Mayor (President of the Gala) took the chair, and there was a good attendance. Upon the result of last year's Gala, he said that those associated with the fête had every reason to congratulate themselves. It had proved one of their most successful ventures. Had the weather been fine on the opening day, the gala might have been a record one. As it was there had been some extraordinary expenses, so that a most favourable balance had been somewhat diminished. They were, however, prepared with a schedule of £750 for the ensuing year, which amount he believed was as large as that offered by any horticultural society in the country. Ald. Border proposed the re-election of Sir Joseph Terry as Chairman of the Council for the ensuing year, and alluded to his long connection with the fête. Mr. George Kirby seconded the proposition, which was unanimously agreed to. The President moved the election of Ald. Border as Vice-Chairman. Mr. Henry Scott seconded, which was assented to *nem. con.* The President announced that satisfactory arrangements had been made with the Bootham Asylum authorities for the holding of the fête in June next, whilst he again consented to act as President, and the City Sheriff (Ald. Dodsworth) had agreed to become a life member. Mr. Joseph Wilkinson was re-elected Treasurer, Mr. C. W. Simmons Secretary, and Messrs. Pearson and Taylor Auditors.

— SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.—The members of this Society held their eighth anniversary dinner at the Imperial Restaurant, Strand, on Saturday evening last, and it was probably the most successful one that has yet been held. Mr. George Nicholson, Kew, occupied the chair, and he was supported by several representatives of English horticulture. The proceedings were almost wholly in French, and in introducing the Chairman to the assembled company Mr. George Schneider, as President of the Society, reminded them of the great interest Mr. Nicholson had always taken in the welfare of the Society and of its members, for he, like them, knew what it was to live in a foreign land, in order to gain experience and complete his horticultural education. Mr. Nicholson responded in well chosen and appropriate terms, complimenting the Society on the good work it was doing, and referring to the substantial progress, as evidenced by their balance-sheet, that the Society had made. He also paid a tribute of respect to their excellent President, Mr. Schneider, for the way in which he had fulfilled that post, and he drank to the continued prosperity of the Society. Mr. Schneider returned thanks on behalf of himself, and was pleased to find the Society meeting with the support of English horticulturists. Other speeches were made by Mr. C. Harman Payne, Mr. Gachelin, and Mr. May. Songs and recitations by the members formed an important feature of the evening's entertainment, and the proceedings were brought to a close by the company singing the French, Belgian, Swiss, and English national anthems.

A RESTING TOUR.

How the papers get filled during holiday time is one of the mysteries—that is if reports be true, for these tell us in their babbling way that scribes and comps *will* “rest” then, whatever the consequences may be. Facts prove the fallacy of such fancies, for the papers were filled as usual, and came out to the moment, rather proving that comps at least rank among the most industrious and self-denying of people. As for the scribes, they have little ways of their own for meeting emergencies, and they give their pens a rest or a frolic when they can.

Since this pen was given free scope to dance along lightsofely, the old year with all its joys and sorrows has gone, but it cannot entirely blot out the memories of the past. Well it is if these are pleasant—a mellowed after-glow of warm greetings and fair scenes, even though these may be steadily vanishing in the misty distance of bygone days. One of these memories was an hour spent with a grand old man who was once famous for Orchids.

Before leaving home for roaming and resting an intimation was given to a knight of the pen of a desire to call, if Fate favoured, on Dr. Paterson of the Bridge of Allan. “Dead long ago!” was the sharp response. “Are you sure?” “Certain.” “When?” “Oh, don’t bother me, I am busy; but years ago.” That is the way these said knights meet each other in parry and fence with their pointed weapons. “Certainly he was an old man fifteen years ago,” was another venturesome remark; “but I had not observed any record of his death.” This brought the young knight up in his stirrups, and in voice stern and snappy came the decisive word once more, “Dead, I tell you. Why can’t you let him alone?” This was closing the door with a bang. The matter ended, and the doctor was regarded as “no more.”

A room at Keir, arranging for a call at Stirling *en route* for Glasgow and Rothesay. “You take train at the Bridge,” commenced the instructor—“Bridge of Allan.” A chord was touched, and memory re-awakened. “Did you know Dr. Paterson?” Such a question, asked within two miles of “the Bridge,” would no doubt seem very absurd, and brought the response, “Know Dr. Paterson! why everybody knows him; he was the making of the place, good quaint old doctor.” “But is he not dead?” “What! the doctor dead! No; and if you go see him you will find him very much alive.” “But what age is he?” “Oh! nobody knows; he has been as he is for years—seen the whole long town spring up, with its “hydro,” hotels, churches. He always said it was the healthiest place in the kingdom, and he seems as if living to prove it, and doing all he can to keep others alive too. A famous man is the doctor.”

A delightful autumn evening. A pleasant walk found us searching for the cosy retreat. Yes, this is the place. There is the glass in the little garden, and here is the name, all the same as before, but the surroundings all different, and the most brilliant flower garden of the season in front of a huge hotel nearly opposite. To the inquiry for Dr. Paterson, as we reached his door, came the professional response from the dainty maid, “No, sir, not in just now. Any message, please? but he will not be long. Perhaps you will step in.” “Yes, thank you, into the garden.” It was not the garden of fifteen years ago, and the houses only contained relics of the past. In comes the doctor, not bowed down with years, but brisk and active; a quaint, rather tall and spare figure, in conventional black and ancient white neckerchief, with the wide-spread wings of the olden time; long white hair hanging over his shoulders in wild abandon—almost a living portrait of his friend in youth and during a long life, the late celebrated Professor Blackie of Edinburgh.

“Eh, man, but I am pleased to see ye, and ye’re wifie—ye picked a bonnie lassie I can see,” was the greeting of the grand old courtier. No gardening noo; son’s gone; always wanted; always busy; folk don’t often die *here*, and want a little attention.” “But I was told that you were dead, doctor.” “What *me* dead! aye they’ve had me dead many a time, and I should have been gone fifty or sixty years ago but for coming here, and here I am as well as ever. Health is a question of common sense, man; but come in and partake of frugal fare and a glass of port to warm ye.”

What a museum is this home of the venerable doctor’s! Years of collecting in the form of relics and curios of all imaginable and unimaginable kinds are treasured here, piled and buried under each other. Ancient swords, daggers, books, chairs, portraits, letters of historic interest, with mementoes of the Queen and a

bit of her bride cake. Neither numbered nor named are half or even one-tenth of the precious relics; but the doctor knows them all, also all about them and their associations. What will become of them?—the result of a long life of searching and storing by a lover of his country and his Queen. Surely another such room, or room so filled, cannot be found in Britain. An hour spent in it takes us back to the turbulent times of long, long ago, and is something to be remembered. But time steals on, and it is late before we know it. “Good-bye. Always call and see me when ye come to Scotland, and bring the bonnie wifie; ye’el always be welcome here. Good-bye.” And so we left our entertainer—quaint and picturesque, a type such as is rarely to be met with in these modern days.

The next day to Glasgow; but a break was made at Stirling to see the ancient castle, perched on the summit of a wondrous upheaval of rock out of a level plain. A little enclosed garden with lawn, trees, and flowers nestles near the summit, and from the battlements beyond we look down the precipitous rock into the almost dizzy depth below; then descend (by another route) for a drive round the base of the old fortress, finding the great escarpment on the western side, a forest of wild Roses, and along the Bannockburn Road, the farthest way to the station. This “farthest way round” was, in accordance with the old adage, for the purpose of “seeing the most,” and enjoying the pleasant suburbs of Stirling.

From Stirling to Glasgow is only about an hour’s run by express, and a pause of an hour or two was made for seeing the “second city in the Empire” and the Botanic Gardens. We saw a little of both, or perhaps it should be said a good deal of the one and very little of the other, for the Gardens were only seen from the outside. It was in this way. A station Jehu was asked to drive us through the city to the Botanic Gardens and back by 4.30. “Oh, aye! ye want to see the toon; it’s a grand toon, ye’el ken.” True, it is a fine city, with broad streets and noble buildings. The worthy man kept time to the minute, for he stopped at the Garden entrance, turned round, and rushed back to the station, arriving there exactly at the specified time. The intention was to have had half an hour or so in the Gardens, and a handshake with Mr. Dewar, but the pleasure was denied us by a precise and conscientious driver. He must have clearer instructions next time—not simply be told to drive to the Gardens, but be informed we wish to go *in* them for awhile, and he must drive through the “toon” accordingly, instead of all over it. It was a case of being “so near, and yet so far”—two or three minutes perhaps from Mr. Dewar, yet for the purpose of a friendly grip, as far as the hands are apart now, or over 400 miles. The incident points a moral—namely, if you want your wishes carried out express them so plainly that they cannot easily be misunderstood, and if you fail in that, and things go wrong, do not blame the coachman.

Off to charming Rothesay. There are three ways of reaching the Isle of Bute from Glasgow. 1, By steamer all the way, about



FIG. 11.
MR. CUTHBERTSON.
(See page 36.)

three hours. 2, By train to Greenock, about forty-five minutes, thence by steamer—an hour. 3, By train to Wemyss Bay, express about fifty minutes—steamer thirty minutes. Fares low, and return tickets available by either route. A convenient train (4.40) started for Wemyss Bay, only stopping once—at Paisley—and brought to mind a “Pansy man” there, bearing a great horticultural name—William Paul. Rothesay was reached before 6.30, or just in time on an early September evening to see the delightful surroundings of the crescent-shaped bay and the attractive town winding round as a terminus—the hills of Argyllshire on the right, with openings to the lochs, the Fir-clad slopes of Bute on the left, the pier and gardens well “peopled”—not with boisterous trippers, but with visitors of the best type, who love to see the splendid boats come and go, as shown in the photographic reproduction obligingly furnished by the “Buteman.” Not much of a garden scene. No, perhaps not; but would that numbers of gardeners could have a week of autumn rest at this fair and salubrious place, to which many garden lovers find their way, not to return disappointed.

We had, alas! but two days on or among the Western Isles—one on sea the other on land, and half the land day rainy, this preventing a visit to Mount Stewart, the princely seat of the

Marquis of Bute, four or five miles from Rothesay. This, as the "Buteman" Guide informs us, is "the acknowledged queen of Scottish watering places." It is the queen of all that we have seen, and served by the most queenly steamers, of which it is said that some forty call daily in the summer to and from the many lochs that intersect the land and wind away for miles between bold hills and glen-like dales that recede till they melt away in the distance. But there is much more than sea and pleasure craft skimming its surface at Rothesay. There are hilly drives through the greenest of fields; there are shady and picturesque woodland walks; there are flowers there of the best and in the greatest profusion.

occasionally, or of whom we have read—and have a restful talk, to racing up and down their "grounds" after being saturated with a season of shows.

We had two such pleasant evenings—one with Mr. Cuthbertson in his charming Swiss chalet-like home in the wood—"Firwood"—overlooking the bay; the other with Mr. John Dobbie—the "original Dobbie"—in his mansionette beyond the Firs, but almost close to the breezy sea. The first was an evening of music and flowers—music vocal and instrumental by Mr. Cuthbertson's talented friends; flower and show lore by Mr. Jones, his competent nursery manager, enlivened by the "pawky," humorous inter-

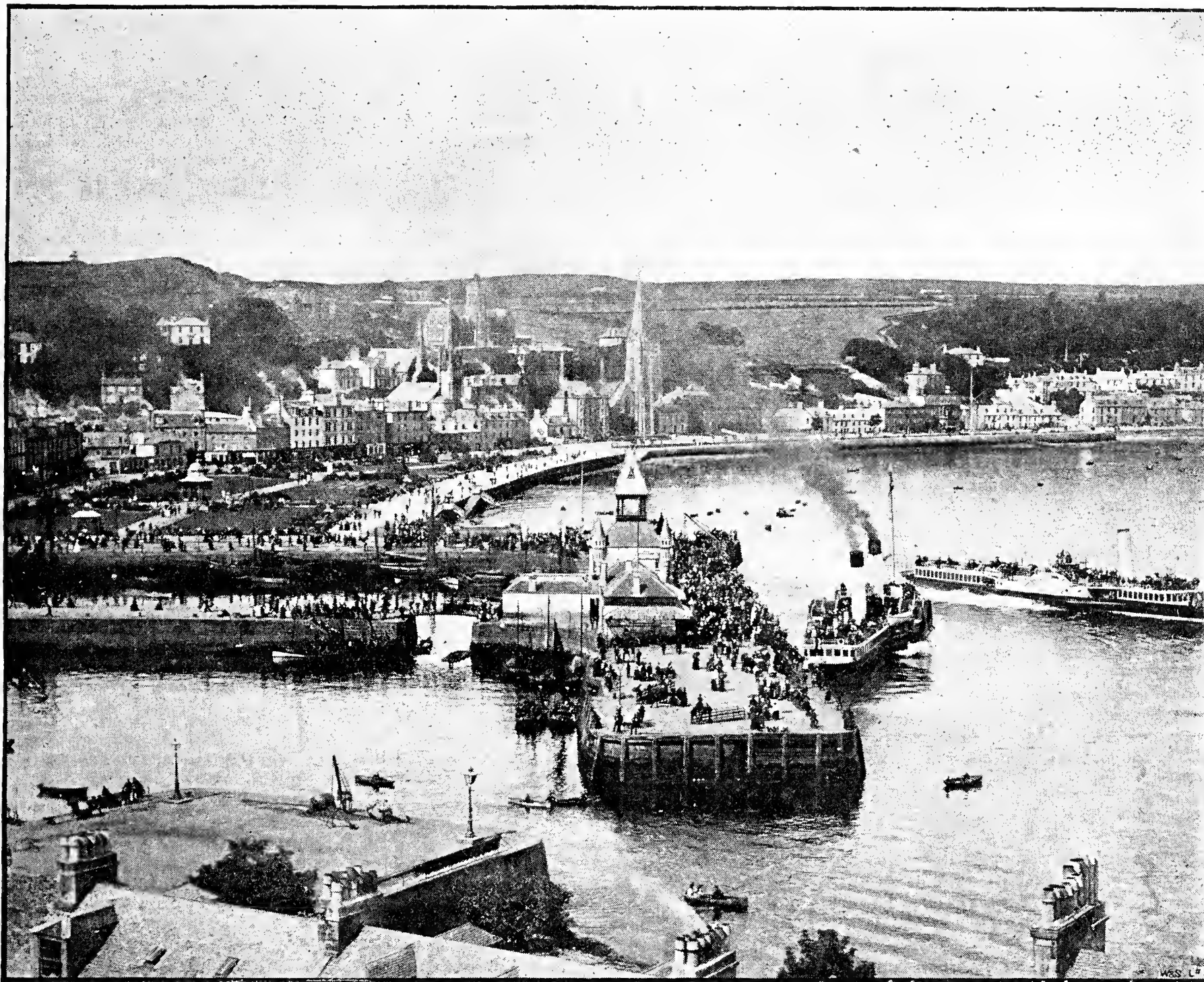


FIG. 12.—A VIEW OF ROTHESAY.

Though not on a garden-hunting tour, we could not but know, in common with all the world of horticulturists, that Rothesay is the headquarters of "Dobbie's;" also that Mr. Michael Cuthbertson, a noted florist, has a nursery there, from which he cuts the flowers that his competitors do not much like to see at many shows, any more than they do Mr. Alexander Lister's. It should be said, however, that Messrs. Dobbie & Co. are not competitors in their classes, so far as we have seen, and it was the desire of the head of this now great firm (Mr. William Cuthbertson) that after a glance at its fields of flowers we should go on and see "Michael"—whether as a relative as well as a friend of our guide is not known. It was only by a rush between the showers that we could carry out half the programme, and this in a half-hearted, fearsome sort of way, in view of a momentary drenching. We prefer to see the friends at home—friends we may have met

ludes of his happy partner, Mr. A. McIndoe Burnie, the third partner, Mr. Robert Fife, having charge of the branches in Kent and Hampshire, but coming in the morning. A delightful evening truly; but what shall we say of the next at Mr. Dobbie's?

From the firm that this fine old florist and horticulturist founded and established he has long since retired. The business grew and grew till it ate up his commodious house and all its appurtenances in High Street, and the time for rest had come. But the spirit of improving strains of flowers and vegetables, in searching for and fixing the best, that made him famous, is with him still, and the delight of this veteran in his garden at home is in Leeks and Beets, and whatever he grows, to beat if he can Dobbie's in the town. Mr. John Dobbie was not, as many think, a gardener in his early days, but an amateur. He did not seek to make a business, but his

strains and selections, now long ago, became so popular that a business was so to say forced upon him, and in time increased, till as above indicated, it turned him out of his home; but not unhappy, for a more happy, genial, interesting man, and more real lover of the garden and its crops, it would be hard to find. His hospitality was almost overwhelming, and his converse of the past most entertaining. It is said Mr. Dobbie is an octogenarian; if this is really so there can surely be few like him, for he is as straight, sturdy, and active as even healthy men are commonly seen before they reach the "sixties." However, whether there has been any mistake in age or not there is no mistake about Mr. Dobbie being a genuine man. It was a treat to spend an evening with him and his help-meet, who is the equal of himself in making his visitors linger till late in their bountiful haven of rest on the eastern shore of Rothesay Bay.

But are we to have nothing about the nurseries of Dobbie and Co., of Cuthbertson, Burnie, and Fife? Very little. The several catalogues are a faithful reflex of the whole. Of Pansies and Violas there are acres—a singularly complete collection. Of Dahlias still more acres—certainly one of the greatest emporiums in the world of the grand "autumn" flowers, of which a brilliant collection was shown at the early summer show of the Royal Horticultural Society in the London Temple Gardens last "May." Think of it, Dahlias in May! Novelties, surely; and as such graciously accepted by the Queen. The twirling Cactus forms figured freely, as they will in many a drawing-room in the future, and it may be expected that all kinds will figure attractively in the forthcoming monograph, edited by the head of the firm, whose "head" may be seen in fig. 11, page 34—a gentleman of decided literary capacity. Then as to all the rest of the border and florists' flowers; they are all in the grounds. There is no mistake about it; but in September cartloads of gay bunches were in the sheds waiting their turn to be sent to many shows. Under glass, Tomatoes commanded attention—a forest of plants of the Champion, roped with smooth, firm, scarlet fruits just of the right size for market; while for fragrance were the Tea Rose scented and rose-tinted tuberous Begonias, showing that Dobbies are up to date, and it will be their own fault if they lag behind. But we must leave them for a day on the lochs in the noble "Lord of the Isles."

The Clyde steamers are admittedly the finest pleasure boats in the kingdom. They are floating palaces and hotels—temperance and otherwise—conducted in the best possible manner. About three hours after leaving Glasgow they call at Rothesay, and proceed up the different lochs. For a long run, some sixty miles, we take the "Lord of the Isles" for Inveraray, pass through the Kyles of Bute (from the Celtic *caol* or *caolus*—a narrow passage) leave Tighnabruaich on the left, where lives the Pansy man, Mr. A. Irvine, and go on past Ardlamont Point, through Loch Fyne, till in the course of three or four hours we arrive at our destination close to the Castle of the Duke of Argyll, "land," remain on shore for an hour or so, then return. To and fro, a run of more than 100 miles, and at what price do you think, dear reader? You would not think the return ticket dear at 2s., would you? It was no special "cheap trip," but the ordinary fare. True, if you wish to be extravagant and aristocratic you can pay 4s. for the saloon end; but the "fore" is just as good, while many like it better, except, perhaps, at dinner time, where the menu of the *table d'hôte* is choicer and terms naturally somewhat higher.

Acting on the advice of two charming young lady amateur guides, who pointed out and explained features of interest on the way, we took tickets for the "fore," and all went well till dinner time, and not very badly then. As only the best could be offered for much kindness places were booked for the saloon dinner, which was excellent, and the price not extravagant; but during a little chat "abaft the funnel" the purser came to examine tickets. "Ah!" (sharp purser), "wrong end; another shilling, please." "But we have only been to dine." "Yes, sir, another shilling." "Then if we travel 5 yards to spend 5s. extra on the ship we have to pay for the privilege of crossing the line to do so." "If you like to put it so; but you are here, and it is my duty to take an extra shilling on the tickets." A matter of small consequence, but just a question of being "caught" and marking an anomaly; for be it noted we travelled nearly sixty miles for a shilling, and then paid an equal sum for walking across the boundary to pay more; or, to put it another way, at the rate of five miles a penny for the trip, "resting" in a chair if we liked, and nearly 2d. a yard for walking to dinner. Such little surprises are good for the memory. As to the pocket, well, when you go a touring you have to "pay," at least such is the experience of—
THE SCRIBE.

HARDY FLOWER NOTES.

"BRICKS without straw" might well be the heading of these notes now. Flowers there are in bloom it is true; but these are few and have been spoken of before, and the garden is in its dullest time. Recently it was as frosted silver. Tree and bush; withered stem or mound of verdure; level ground or rockwork pile were glittering with tiny crystals. With that silver plating which the most skilled worker in metals could not hope to rival, the network of the hedges was beautiful to see. Thorn, and bud, and branching bough were covered with their silvery coating, and even the haws which still keep crimson at Christmas Eve were frosted over. The veil of mist which hung o'er all was drawn aside, and the cold sunlight of December shone for a time upon this wintry scene, and gave it a greater glory—cold though that glory seemed. Hard was the soil, and the adventurous Snowdrops and Crocuses were arrested in their eager desire to win our admiration.

The Water Lily pool was covered with thick ice, through which we could only faintly discern the crowns, which, when summer comes with genial breath, will yield us their fairy flowers afloat upon the waters, which—though now congealed and chilling even to see—will then give a welcome coolness. Everything was wintry, yet inexpressibly beautiful. That blackbird, with ebony garments and yellow bill, which comes to the window side to breakfast off the berries of the Cotoneaster, looking quickly round to see if danger were near, seemed like Keats' owl, which "for all his feathers was a-cold." He is black but beautiful indeed, and for his beauty is welcome to the berries in return for his company. In summer we are less pleased with his presence (though his music is welcome), by reason of his raids upon the Gooseberries, the Strawberry, and Peas. Then we are apt to greet him with explosions of wrath, forgetting that even then he does some service in return, and only claims his just recompense. The tits and the robins are about also, while the perky sparrow is never absent, seeking crumbs by day, and by night resting on the Roses on the house front.

But as the misty veil was drawn back the clouds aloft were seen driving from the west, and through the night the frost vanished and the silvering fled before the south-west wind and heavy rains. The ice is melting swiftly, and though the skaters and curlers may grieve the Snowdrop and Winter Aconite will rejoice. The latter will be in flower in some gardens, but here it is just coming through the soil with its little yellow flowers protected by their green ruff. "Too common," perhaps, for some folk's gardens, but of welcome brightness in the dark and gloomy days of winter, and doubly welcome for lighting up a dull corner where something lively is needed at any time, but especially at present. One such corner here has, by way of experiment, been planted with Lily of the Valley and Winter Aconites intermingled. Should these succeed, as they are expected to do, a pleasing picture will be formed both when the Aconites dare the storms of January and when the Lilies of the Valley

"Droop on slender threads
With broad hood leaves above their heads,
Like white-robed maids in summer hours,
Beneath umbrellas, shunning showers."

But these are pleasures of anticipation; sights of the days we may never see; and we must turn to the winter-flowering Jasmine on the wall, to these white Christmas Stocks, to the Primroses, the few Crocuses and Snowdrops, or to the greenery around for subjects of thought.

That Jasmine with its golden stars is a winter flower that some despise, but which we cannot well spare, with its green branches and its yellow blooms. On the wall it gives that touch of gold we love to see, and small though its flowers are, they are flowers still, and with beauty of their own. At the foot of the south-west gable of an outhouse in a narrow border are some white Christmas Stocks, the seed of which was procured nearly two years ago to produce plants to flower the following Christmas. This they did, and last spring were turned out into the border, where they have been almost continuously in bloom. They have stood the frost well, and this day of Christmas Eve quite respectable flowers could be cut, though a water cask near had ice nearly 5 inches thick on its surface. These Stocks were recommended for greenhouse work at the festive season, but it is pleasant to have them outdoors too, though their beauty may be a little dimmed by frost and rain.

On the wall behind is a plant of the rare *Lathyrus pubescens* from Uruguay, kindly given to the writer by a connoisseur in flowers. What disaster this or other winters may bring to it time alone will tell, but much to our surprise this South American Perennial Pea remains as yet fresh and green, and unharmed by the ordeal it has undergone. It did not flower last summer, but it was only a young plant then, and not strong enough for blooming. May winter spare it so that 1897 may afford us the treat of

a sight of its flowers. The leaves are distinctly pubescent, and the plant, taking it all in all, quite attractive.

The Primroses seem even more wan and melancholy than when last we wrote of them. Carew tells us why this

"Flower does show
So yellow, green, and sickly too."

The younger portion of my readers may be interested in his reply:

"I must tell you these discover
What doubts and fears are in a lover."

As days lengthen, however, they will look brighter by far, and in sheltered nooks in the garden as in the woods will show their modest beauty at its best.

The Crocuses are wearying for more sun, and *C. hyemalis* Foxi, with an early bloom or two of *C. Imperati*, keep their "cuplets" fast closed. When the sun returns with a little stronger power Fox's Winter-flowering Crocus will display its white cups with their black anthers, which contrast so well with the colouring of the segments of the flower; but although a few of *Imperati*'s Crocuses may bloom at the same time it will be later ere the majority delight us with their beautifully coloured flowers. Many of the Snowdrops are white-tipped or are drooping already to show us their loveliness. They are not as a rule unusually early, and have made little progress for some time. Of these we must speak again.

The remark of the Rev. D. R. Williamson, in his pleasing article in the Journal of the 24th December, regarding *Chionodoxa Luciliae* being in flower, is an interesting one, which leads to the inquiry if the bulbs are established or newly imported ones. Although Kirkmaiden is an early district, the Glory of the Snow is so much before its usual period that one is inclined to think that the roots have not been established, and have thus not been accustomed to our climate and its ways. Perhaps your accomplished correspondent can tell us.

Ere long, however, the Glory of the Snow shall come here to tarry for awhile with the Snowdrops, the Scillas, the Netted Irises, the earliest Saxifragas, and the other gentle flowers which hail the opening year. They come smilingly, though Nature seems to look upon them with lowering brow. Not so; they could not stand her smiling summer moods, and so they come to wish us, as we wish all readers, that "Happy New Year" we all desire. May the blooming of these early flowers bring true happiness and precious delight to all unmarred by aught of sadness or misfortune.—S. ARNOTT.

TREES AND SHRUBS FOR CHALKY SOILS.

I NOTED a correspondent, "G. K.," on page 10 of your last issue, asking for a list of shrubs that grow and do well on chalk. A near neighbour who laid out a large place and planted it with all, or nearly all, the best shrubs, was some years after asked for a list of those that succeeded; enclosed is a list of them. "G. K." may fully rely that these will be likely to give him satisfaction.

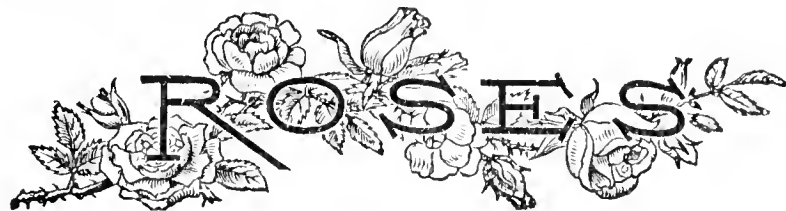
Aucubas
Buddleia globosa
Box in variety
Cotoneaster microphylla
" Simonsi
Hypericum
Ilex in variety
Berberis
Mahonia aquifolia
Olearia Haasti
Veronica Traversi
Laurels, rotundifolia
" caucasicum
Acer in variety
Amygdalus in variety
Fagus
Fraxinus
Cerasus
Cornus
Deutzia
Forsythia suspensa
" viridissima
Hibiscus
Laburnum
Lycesteria formosa
Philadelphus

Pyrus (Pear and Apple sections)
Pyrus (White Beam section)
Prunus Pissardi
Ribes in varieties
Sambucus in varieties
Spiræas " "
Symphoricarpos racemosus
Syringa (Lilacs)
Thorns in variety
Virgilia
Ulmus campestris
" montana

Conifers:—
Abies pygmaea
" Menziesi
Cedrus Libani
Cupressus Lawsoniana
" erecta viridis
Juniperus in variety
Taxus The Golden
Thuia Lobbi
Thuiopsis dolabrata
Spruce, Scotch Firs
Abies Pinsapo
Pinus austriaca

—HENRY CANNELL.

CEANOTHUS AMERICANUS.—A correspondent of "Meehan's Monthly" speaks in praise of *Ceanothus americanus*, or New Jersey Tea, as one of the plants which make an excellent low hedge, never grow beyond bounds, and look well at all seasons. It will endure dry weather well. It puts forth leaves and stems in early spring, and is soon covered with its feathery blossoms, and when the leaves have fallen the erect red stems are still handsome. In the north the winter sometimes kills back the young growth, but, in any event, the plant only needs one trimming in the spring.



THE ROSARIAN'S YEAR BOOK, 1897.

WE welcome the R. Y. B. for 1897 in the words of its this year's motto, "Perennial Rose" Book. "May its shadow," or rather its substance, "never be less." Its veteran editor has once more catered excellently for us—a well "varied menu," as he says, certainly not "a réchauffé." It contains two articles by the editor—the one a notice (with life-like photograph) of Mr. C. J. Grahame, the small grower's friend, who ran third, and that a good third, in perhaps the hardest fight of the year—the contest for the Sutton cup at Reading; the other, the N.R.S. history for 1896, a paper of great interest, and showing none of his natural force abated. Then we have poetry by the Rev. D. Williamson, and forcible prose by the Rev. A. Foster-Melliar, who gives a valuable analysis of the newest and best Teas, with a good word for some old ones.

"Madame Hoste in her war paint, prepared and sent out for conquest at some grand function by such efficient and clever ladies' maids as Messrs. Orpen or Jordan, is a beautiful Rose indeed, and a strong candidate for the medal if Elise in her old-fashioned radiance is not to be found. It should be remembered that papering, though it deepens the yellow, generally spoils the red shade."

Mr. A. Piper discourses on H.P.'s and H.T.'s of recent years. Those who wish to keep their Rose lore up to date will do well to study this paper with close attention. We can give but one extract:—

"The redeeming feature of 1892 was the splendid examples of what is perhaps one of our very best H.T.'s, originally shown and 'gold medalled' under the name of Mrs. W. J. Grant, and afterwards renamed Belle Siebriecht. This cross between La France and Lady M. Fitzwilliam was not given to the public until 1895."

Our largest amateur grower as I suppose, or thereabouts, Mr. Pemberton, discourses condescendingly on "less than 500." His advice is most valuable, though perhaps startling to small people, suggesting when starting, the purchase of twenty-fives and twenties, with even fifty of Her Majesty and Mrs. J. Laing—"not the 500," or anything like it—varieties. Every word he writes is noteworthy, and not least this suggestion:—

"I am sure of this, that a box of six that contained three fair examples of such grand Roses as Mrs. J. Laing, A. K. Williams, and Horace Vernet, no matter what the other three Roses were, provided they scored a point, would indeed be hard to beat."

The subject of the Hybrid Tea is returned to by Mr. George Paul, indeed his "foot is on his native heath" here, as his Cheshunt Hybrid began the series, and was forcibly driven into a class of her own. The H.T. is unquestionably the coming Rose, and every fresh acquisition shows yet more this Rose's excellence and possibilities. A very valuable paper is thus summed up.

"What have we gained in the new class of H.T.'s? 1, A nearer approach to hardiness in the light and yellowish coloured Roses. 2, The development in these hardier Roses of the more artistically beautiful flowers, which T.'s, compared with H.P.'s, have. 3, A new race or class, with free autumnal qualities so essential nowadays in an English garden."

Last, but not least, are two articles by the other Honorary Secretary of the N.R.S. He is nothing if not statistical, and his first article on "Medal Roses" is this in high perfection—"Almost any good exhibition Rose would appear to have a chance when in the most perfect phase of its possible beauty of securing a medal at some time or other," but Mr. Mawley's tables clearly show that only certain choice kinds have this distinction frequently conferred upon them. The result of eight years is given:—A. K. Williams won the medal 20 times; La France, 18; Mrs. J. Laing, 17; Her Majesty, 14; &c., &c.; Comtesse de Nadailac, 26; Souvenir d'E. Vardon, 19; The Bride, 15; Maréchal Niel, 8; &c., &c.

The usual "Weather Article" concludes the series. A bumper year has yet to be recorded. Last year broke the record as one of the earliest. It was the making in one way of the Reading Show. "At this exhibition 3975 blooms were staged, making this the largest show ever held by the Society in the south of England." It was held in the famous Abbey grounds, and several excellent photographs of the show and of the judges may be obtained of Mr. Victor White, Reading. N.B.—This is not an advertisement.

Mr. Mawley concludes, "It will be gathered from the foregoing history that our rosarians just missed enjoying an unusually grand Rose season, and that through no deadly winter or cruel spring frosts, but entirely owing to the prolonged drought and heat. . . . All went well until about the middle of May. . . . From this time adverse weather conditions prevailed, consequently the first flowering was soon over, and the blooms, when they came, although mostly well formed, were unusually small and thin."

We conclude with a stanza of Mr. Williamson's sweet "Memories."

"Stars of the earth, that fill the earnest mind
With thoughts of that deep rest which dwells above;
In you, O peaceful flowers, our spirits find
The likeness of His life Whose name is Love."

THE YOUNG GARDENERS' DOMAIN.

FROM THE FOUNTAIN PEN.

I WISH to convey my thanks to "E. K." for his kindness and thoughtfulness in offering the beautiful fountain pen, which I feel proud to have won and received. A fellow gardener once said, when talking of a class he was attending, that he could not rouse his enthusiasm in the lectures, as there was no enticement in the shape of prizes. The "Domain" writers cannot tender this excuse, for we have now some allurements. I received a writing book this Christmas, and now I have a fountain pen. May I possess along with these the needed tact, accuracy, and wisdom to become a good writer. If, "E. K.," I cannot write you a flowing effusion of thanks, know that I feel my gratitude. My thanks also tendered to the Editor.—J. H. DICK.

VINE PRUNING.

IT is not without some trepidation and misgiving that I enter upon the subject I have chosen for this article, as I am aware that it refers to very important work in garden routine, and I think one which, as a rule, young gardeners are not credited with knowing much about. However, as our kind Editor has given us permission to try, and encouraged us in so doing, I will without further preface endeavour to state my views on Vine pruning.

In the first place let me say that a sharp "Saynor" is a *sine qua non* (I hope the Editor will pardon the Latin), because a clean cut heals much quicker than a rough jagged one, and has a tidier and more workmanlike appearance.

No hard and fast rule can be laid down for pruning a Vine, as the individual condition and requirements of each one must be considered. For instance, early forced Vines require rather different treatment from late Vines, which start naturally in the spring. The former do not make such good growth as the latter; the consequence is that plump well-formed buds are not so plentiful.

The best bud nearest to the base of the shoot must be selected, and the shoot pruned back to it. If the best buds are cut away for the sake of having a short neat-looking spur, good fruit-bearing growths cannot be expected. If one spur die the one below should be left rather longer in order to take its place. The same remark applies in the case of a weakly spur, which may be cut out the following year.

When there is room between the Vines it is a good plan to train a shoot from the base, eventually to take the place of the old worn-out rod. This method of pruning is known as the long spur system. Its object is to continually encourage young wood in place of the old. By these means the life of the Vine is prolonged, and its fruit-bearing capacity is increased. Some varieties, as Barbarossa, Duke of Buccleuch, Golden Hamburgh, and others are of a delicate nature, and succeed well on the above system of pruning. The spurs may very often die back, so that young growth is necessary to the life of the Vine.

It is not difficult to find good buds to prune to on Vines allowed to start naturally, as these produce much better wood than early forced ones. If when the Grapes are cut the shoots were partially shortened it would be found to plump up the back buds considerably. In some establishments, more especially in market nurseries, the Grapes are left hanging on the Vines, for want of a suitable fruit room in which to store them. If the Vines have started into growth before the fruit is removed, as sometimes happens, they are then simply disbudded. Afterwards, when the Grapes are cut, the disbudded portion is pruned closely back.—H. H.

[One of the neatest, most carefully and accurately written first articles we have yet received, while what may be termed a great subject is well compressed in the limited space. Can "H. H." next describe the treatment of Vines from starting to flowering (not beyond), describing temperatures and processes, giving reasons for the different items in routine? He may if he wish occupy a little more space, and take all necessary time, as in the present instance, of doing his literary exercise well. Our young friends, as well as old ones, should know that the true "Barbarossa" Grape is pale red or grizzly, and that so far as we know all the Vines grown under that name in this country are Gros Guillaume.]

EUPHARIS AMAZONICA.

AMONG the many useful white flowers so eagerly sought after by ladies I think there are few to excel the beautiful Amazon Lily, and considering the plants produce abundance of bloom (if properly cultivated) in the depth of winter they are the more valuable. Whether the flowers are used as buttonholes or in bouquets or wreaths they look exceptionally handsome. Another good quality they possess is, they last a long time in a fresh state after being cut. When grown to embellish the stove or other warm house their lovely white, wax-like blooms, combined with beautiful dark green foliage, make them unsurpassable.

The Eucharis, as far as I have seen, is not one of the most easy of culture, as the plants require a great amount of careful attention, especially as regards watering. I once served under a very successful grower of Eucharises, but eventually the plants seemed to lack their usual vigour, and some died. The first signs were the leaves turning yellow and sickly, and the leafstalks presenting several rust-coloured spots. On examining these with a pocket lens several tiny insects were found; the bulbs, too, were found to be affected, and on some of them being cut in two we found that this pest had eaten the flowers right away. What was to be done to get rid of this pest? The

bulbs were immersed in a mixture of urine and soot for four hours, some being left a whole day, when they were taken out and repotted in a compost of three parts good fibrous loam, one part well decayed leaf mould, and a sprinkling of coarse sand, all well baked to kill any insects or eggs that might be therein. The pots were effectively drained, four to six bulbs (according to size) being placed in 16-size pots, and the soil made firm. They were then placed in their old quarters, where there was about 70° bottom heat and 65° general. They then started, and continued growing vigorously as if nothing had happened. Perhaps some of my young brother gardeners have seen similar occurrences.—ASPIRANT.

[Useful, but the writing much too close for proper revision.]

EARLY FORCING—PEACHES AND NECTARINES.

ON account of the close relationship of the two fruits named, the Nectarine being but a smooth-skinned Peach, the same mode of treatment is applicable to both.

The houses should always undergo a thorough cleansing before the trees are started into growth, the trees then removed from the trellis, pruned, and retrained. It is also advisable to syringe them well with some good insecticide to make sure of destroying all insects.

We next direct our attention to the borders, point them over lightly on the surface with a fork; we next sprinkle them with lime and a quantity of wood ashes, then a top-dressing of good fibrous loam, about 2 inches in thickness, and if the trees are in a weak state of growth add a quantity of bonemeal, and make the borders as firm as possible by trampling them over.

After the borders have been well watered, the trees may be started into growth in a temperature of about 40° to 45°. The syringe must not be used too freely until after the flowering period, so as not to encourage growth in advance of the flowers. If the fruit buds are overcrowded, it is best to thin out all weak ones before they are opened, so as to leave room for the stronger to open freely.

The atmosphere should be rather drier than usual during the flowering season, and in dull weather a little extra fire heat should be given, with a free circulation of air through the houses. To insure a good set of fruit, it is best to assist the distribution of the pollen by drawing the tip of a rabbit's tail over the flowers lightly when they are fully expanded and the pollen ripe. This process must be repeated each day when the atmosphere inside is as dry as possible, then tap each branch lightly with the hand. The paths and borders inside may then be damped with a can, and do not syringe the trees until the petals begin to drop, showing that fructification has taken place, when a gentle dewing of the trees with tepid water from the syringe will do much good by assisting the embryo fruit to swell freely, when the temperature may be raised gradually to 55° or 60° by night and a little higher during the daytime.

Disbudding may next be proceeded with. This operation is best done at intervals of about a week or ten days, as then there will be but little danger of checking the growth when a little is removed each time. In the first place rub off with the finger or thumb all "breast shoots," leaving only the well-placed side shoots. The next time we leave two sprays at the base of each piece of bearing wood laid in, and another at the extremity, but if these are more than the average distance an intermediate one may be left. At the final disbudding only one spray is left at the base of each shoot, and it should if possible be on the upper side, as, being the best situated, the training may be carried out properly, and to prevent unsightly bends at the lower ends of the young shoots, give them a tie, at an early stage, to the one branch from which they emanate.—J. F. DONOGHUE.

(To be continued.)

R.H.S. EXAMINATION.—HORTICULTURAL PRACTICE.

(Continued from page 17.)

Question 1.—"Describe the preparation of the ground for the Onion crop; the method of sowing the seed, and subsequent treatment; also the most suitable soil."

The ground on which Onions are to be grown should be trenched in the autumn, leaving the surface as rough as possible. Unless the subsoil be of a suitable nature, it should not be brought to the surface or mixed with the surface soil, but should be broken up with a fork in the bottom of the trench, at the same time mixing one barrow of farmyard manure and a bucket of quicklime with every eight square yards of ground. If the subsoil be good it may be mixed with the surface soil, together with one barrow of farmyard manure, and 7 lbs. of wood ashes to every six square yards of ground. If wood ashes are not obtainable use 2 lbs. of kainit, and 2 lbs. of basic slag phosphate instead. Early in March rake the surface of the bed level, and tread the land very firmly, choosing a dry day for this purpose. After treading rake the surface level, and sow the seed in shallow drills 1 foot apart, leaving out every fifth row to form a path. The seed should be sown thinly, so that when the seedlings grow they would stand about three-quarters of an inch apart. Cover the seed with soil, and make the surface of the bed level and firm.

The subsequent treatment consists of keeping the bed free from weeds, hoeing the soil to prevent it cracking, and also to retard the evaporation of water, thinning out the Onions until they stand about 6 inches apart, and feeding the plants every fortnight during May and June with $\frac{1}{2}$ lb. of nitrate of soda per rod. Time, twenty-five minutes.

Question 2.—"What are the circumstances which should regulate the frequency of watering, and the amount of water to be given to plants in pots?"

The circumstances regulating the frequency of watering will depend to a considerable extent upon the following circumstances:—1, The weather; 2, The season of the year; 3, The soil; and 4, The kind of plants to which water is to be given. If the weather be windy, sunny, or hot plants will require more water than if it (the weather) be still, cloudy, or cold. Plants also require more water during the spring and summer months than they do during the autumn and winter. Soils that are loose, gravelly, or sandy require watering more frequently than peaty or clayey soils. Some plants grow more vigorously than others, and as a general rule the former require a greater supply of water.

The amount of water to be given to plants in pots varies according to the extent of foliage and roots they (the plants) possess. Plants with few roots and narrow or leathery leaves, do not require so much water as those which have many roots and broad soft foliage. Plants which have been recently repotted do not require so much water as those which are established. Time, sixteen minutes.

Question 3.—"Describe the most suitable soil, and method of culture, for such tap-rooted vegetables as the Carrot and Parsnip."

(a) The most suitable soil for crops like Carrots and Parsnips would be a deep rich loam, as free from stones as possible. (b) The land for these crops should be trenched, and a liberal supply of decayed manure added during the autumn. When trenching break the soil up as small as possible, or the roots will become forked. In March dig the soil over with a fork, making the surface as level as possible. The Carrot seed should be sown towards the latter end of March, in drills 9 inches to 1 foot apart. Hoe the surface frequently, and thin out the plants until they stand 9 inches apart in the row. The soil for the Parsnip seed should be prepared in February, and the seed sown then, on land prepared in the same way as for Carrots. Sow in shallow drills from 1 foot to 15 inches apart, and thin out the plants until they stand 1 foot apart in the row. Time, twelve minutes.

Question 5.—"Give the names of the best varieties of Strawberries. What is the most suitable soil for their culture? Describe the culture in detail for forcing and open ground."

(a) President, Newton's Seedling, Royal Sovereign, Sir Joseph Paxton, and La Grosse Sucrée. (b) Deep rich loam, overlying gravel or chalk, forms the most suitable soil for Strawberry growing.

(c) Forcing plants are obtained by pegging runners into 3-inch pots filled with rich soil, and as soon as rooted shifted into their fruiting pots (32's). The larger pots must have good drainage, and the soil cannot well be rammed too hard. The soil should consist of a mixture of three parts fibrous loam, one part decayed manure, and one-sixth part of bone-meal. The runners should be layered as early as possible.

When the plants are potted stand them on ashes, give water when needed, and place them in a cold frame as soon as severe frost occur, removing the lights on every favourable occasion. The plants should be removed into the houses for forcing as required. They will require watering carefully, and syringing until the flower buds begin to expand. As soon as the fruit is set weak liquid manure should be given frequently, and when the fruit begins to ripen a drier atmosphere and more air is needed.

The culture for out of doors consists in selecting runners as early in August as possible, and planting them in prepared ground 18 inches from plant to plant, and 3 feet from row to row. When planting spread the roots out in a natural way, and do not get the crown of the plant below the surface of the ground. Remove runners as fast as they appear, and hoe the land to keep it free from weeds. Long manure or straw should be placed in the rows about the time the plant begins to flower, to keep the fruit clean. If the weather be dry give water and weak liquid manure if possible. Time, twenty-five minutes.

Nine questions, running from 1 to 9, were set last year on "Elementary Principles," and nine questions, running from 1 to 9, on "Horticultural Practice." Unfortunately I omitted to write "Elementary Principles" at the heading last week.

Before I finished I intended giving young gardeners a few words of advice on the exam, but my answers will already take up a considerable space in the "Domain." With the Editor's permission a little friendly lecture will be given another week by—A STUDENT.

[Permission is readily given for advice that may be useful to other young gardeners.]

VACCINIUM ERYTHRINUM.

ALMOST any plants that flower at this time of year are welcome in the greenhouse, and that of which a small bunch is shown in the engraving (fig. 13), though not remarkable for its richness of colour, is well worthy of a place in collections. It is of strong habit, producing its flowers freely in December and January, and can be readily grown under the ordinary treatment afforded to greenhouse plants. The flowers are of a peculiar dark purplish red colour, and are borne in racemes at the extremities of the bunches. It has long been an occupant of British gardens, but appears to be very little known.

COUNTY COUNCIL TEACHING.

If your readers are to believe all they see stated upon the above subject they must think that either some teachers are incompetent men, or your correspondents are not endowed with a superfluity of caution. I happen to know that the first sentence of the paragraph on page 422 of your last volume is untrue. The writer of it sent the statement to you without knowing a single fact of the case. The last sentence of the paragraph I know nothing of, and Mr. Hughes repudiates all knowledge of it.

Your correspondent "South Wales," in your last issue (page 10) naturally infers that the paragraph he saw was a fair version of facts, and he proceeds to give another instance of what he considers wrong teaching. His statement may be correct; on the other hand, it may be as unfounded as the sentence to which I have referred. When a person is so certain that a public teacher is giving faulty instruction at the expense of the public, surely he feels sufficient confidence in the righteousness of his cause to enable him to sign his name to his protest, and not require the use of a *nom de plume*!

It is foolish to suppose that men who for years have held prominent

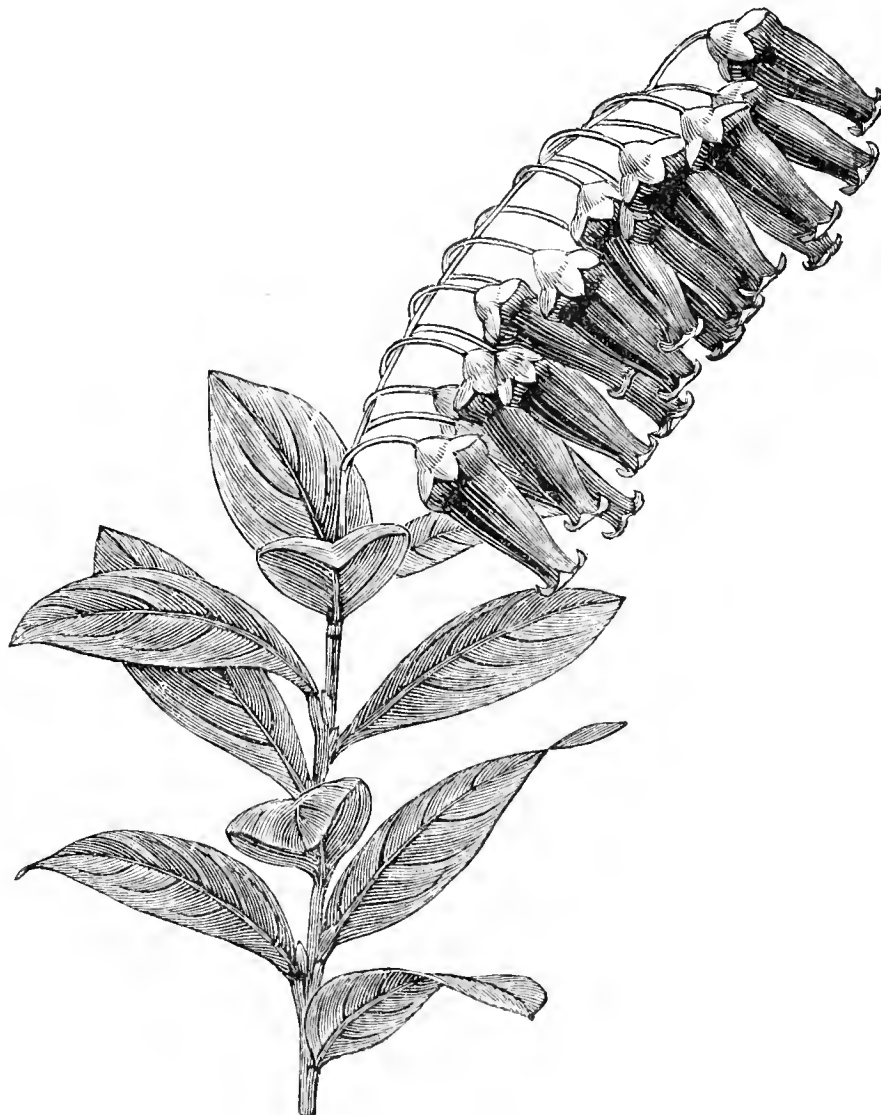


FIG. 13.—VACCINIUM ERYTHRINUM.

positions in the front rank of practitioners, should degenerate into mediocrity the moment they devote a large portion of their time to imparting their knowledge to others. The very nature of their new and varied work produces the reverse effect. They are compelled to study harder and think deeper, and take broader—though not less sound—views than ever before, if they are to fit themselves, and keep themselves fit, for their work.

Men who have to stand cross-examination—by all sorts and conditions of men—upon the subjects treated, and to stand that successfully night after night and year after year, are not horticultural weaklings. Possibly there may be here and there men who are not best fitted for the work in view, and these may have been engaged on the principle of—"if we cannot have whom we would like, we must have whom we can get." But such teachers are mainly temporary. The majority of "so-called Technical Instructors" are quite up to their work as such, and doubtless can hold their own in practice with the best cultivators in the country, but they do not lay any claim to infallibility.—J. UDALE.

[The paragraph to which our correspondent first refers appeared on October 29th, 1896; his correction reached us on January 9th, 1897, so it does not appear in his view to have been very urgent. The advice referred to in the same paragraph, and which Mr. Udale "knows nothing about," was inserted on the direct authority of a gentleman who followed the advice that was given to grow Tomatoes in trenches prepared as for Celery, with the result of having gross stems and leafage, but no fruit. We fully agree that the majority of horticultural instructors are sound, practical men, and if we had not regarded Mr. Udale as being in the "front rank" we should not have testified to that effect long ago, as we did with pleasure; but he knows very well that all are not equally endowed with knowledge and the gift of teaching.]



HARDY FRUIT GARDEN.

Pruning Outdoor Vines.—When Vines are crowded with surplus rods or spurs these should be well thinned out. Strong young canes extending from any parts of the Vines, and which have had the chance of becoming fairly well ripened, may be retained for filling vacant spaces. Shorten them to not more than 4 feet. Similar growths may be encouraged during the next growing season, selecting them from near the base. These may eventually take the place of any further exhausted parts.

Vines confined to the spur system only may have the lateral shoots shortened to two buds, training in the best and most fruitful of the growths which start in spring. Some Vines are only allowed a limited number of rods furnished with spurs, the rest of the space being occupied with younger wood.

The long rod or extension system may also be exclusively employed, in which case there will be no spurs older than a year or two. The periodical renewal of growths, avoiding overcrowding, is the best system as a rule for outdoor Vines.

Cleansing.—In very hot situations in summer the foliage is frequently attacked by red spider or thrips. In order to destroy the pests the rods must be washed over with soapy water followed by a dressing of some effective insecticide. One of the best is Gishurst compound. Dissolve 4 to 8 ozs. in a gallon of water, and use warm. It will act effectually if applied as a lathery solution, or it may be thickened to the consistency of thin paint by adding clay, loam, or soot. In either case apply the dressing with a painter's brush, reaching every available angle and crevice. Another serviceable wash consists of 4 ozs. soft-soap dissolved in one gallon of water, adding a handful of sulphur, also a little clay to thicken the mixture. This is also applied with a brush.

Thinning Old Orchard Trees.—Good results invariably follow an intelligent reduction of the crowded branches of standard orchard trees. In the first place, however, the trees should stand at least clear of each other. It is not quite satisfactory to thin the branches only when the trees have been originally planted closer together than they ought. Remove branches and spray from the centres of every tree. Dispense with interlacing branches, more especially on the outsides. This will encourage the trees to assume form and shape, as well as productiveness.

Pruning Gooseberries and Currants.—Continue pruning bush fruit as opportunity offers. Thin out Gooseberry bushes well, leaving a liberal amount of young wood disposed regularly and thinly. Remove altogether shoots or branches which touch the ground. Naturally drooping varieties should have the lower branches pruned to buds pointing upwards. In selecting shoots to retain choose those growing upwards rather than downwards. Weak wood cut out entirely. The best for fruiting is of moderate strength, well ripened, and not too long. Dust freely with dry lime on a damp day, as a protection against ball-fishes, starlings, and sparrows.

The side shoots of Red and White Currants require cutting back to an inch of their base, where the fruiting spurs are arranged in clusters close to the main branch. In pruning bushes not fully grown the terminal shoots may be left 6 or 8 inches long. Vacant spaces in bushes may be filled whenever necessary by encouraging a strong young annual shoot to extend, shortening it at the winter pruning to 8 or 9 inches, so that the following season side shoots will be developed freely. These, reduced in length in summer and shortened to an inch in winter, will form fruiting spurs at the base.

Black Currants may simply have the oldest portions of wood removed annually and the best of the youngest encouraged, chiefly selecting that nearest the base of the bushes. The trees bear freely on young wood. Dispose it 4 inches apart, preferring that growing erect, and not crossing.

Heading Apples and Pears for Grafting.—Any old trees healthy in character but inferior fruit producers may be grafted in spring with well proved varieties. As the sap is not now active, this is the best time to head down the large branches near to the position where the grafts are to be inserted.

Scions for Grafting.—In the course of pruning the most suitable shoots for affording scions should be selected, tied in small bundles, named, and laid in in moist soil. It is important that a cool, sheltered situation be chosen. The buds must remain dormant. The scions prepared from these shoots will then be in a proper condition for inserting as grafts when the sap rises in the stocks.

Lime-washing Fruit Trees.—Though the application of lime-wash may be considered rather disfiguring to trees in conspicuous positions, it has the effect of cleansing the bark of minute vegetable growths which frequently accumulate on the stems and larger branches of fruit trees. Old specimens in orchards and exposed positions in gardens are chiefly affected. Sulphur added is beneficial, and the wash may be toned down with soot if the white colour is objected to. The propor-

tions of the above substances to form a useful cleanser may be four parts hot lime, three parts sulphur, and two parts soot. Mix to a proper consistency for applying easily with a brush when the bark is damp or wet.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest House.*—The recent dull, wet weather, combined with the mildness, has not been favourable to the setting of the fruit, as the tendency is more in favour of wood growth than blossom development. The chief thing to aim at is the fertilisation of the flowers, which, having developed in a comparatively genial and well-ventilated atmosphere, will have opened well and be duly furnished with pollen. Raise the temperature to 50°, if it have been lower through the night, as soon as possible after daybreak, and maintain it at that figure during the day by artificial means, putting on a little air so as to induce a circulation without causing a draught. Maintain a genial atmosphere by damping the paths and borders in the morning and early in the afternoon of fine days, but in dull, wet weather an occasional damping will suffice.

By ventilating early with a suitable temperature the trees are kept in steady progress, the blossom become perfectly developed, and fertilisation then is readily effected. The pollen may be distributed by means of a camel's hair brush, feather, rabbit's tail mounted on a small stick, plume of Pampas Grass, or shaking the trellis. The night temperature must now be 50° to 55° in mild weather, 55° by day from fire heat, advancing to 65° from sun heat. Increase the ventilation freely above 55°, but not so as to lower the temperature, and close at 65°, a few degrees advance from sun heat being beneficial. Remember that a well-aërated atmosphere is essential for the vitality of the pollen, and cross-fertilisation more potent than self-impregnation in many cases; besides, when pollen is deficient in any variety some should be supplied from another affording the golden dust plentifully.

Disbudding must not be done hurriedly, but any strong shoots of the previous year having a tendency to push growth in advance of the others may be commenced with, first removing the growths on the under side of the shoots, and then removing the side growths to the number required—namely, one from or near the base as possible to supplant that now fruiting, and another, or more, above or on a level with the fruit, and which should be pinched at a few inches of growth, or if the shoot be an extension leave growths at about every 15 or 18 inches to form the bearing shoots of next season, continuing those with the leader intact. Disbudding, however, should be commenced before the shoots are an inch long, and be continued at short intervals until no more shoots are left than will be necessary for furnishing the wood of the ensuing season's bearing. Afford due, but not excessive, supplies of water to the inside borders, and protect the roots outside with dry material. After the fruits are set an occasional syringing will assist the trees to cast off the remains of the blossoms, yet avoid heavy syringings, which have a tendency to weaken the growths.

Second Early House.—The trees to afford ripe fruit early in June must now be started, this house corresponding to the first in many establishments, which with the very early varieties give ripe fruit about the middle of May, the house having been closed at the new year. Employ fire heat only to maintain a day temperature of 50°, raising it early to insure the development of the blossom with light and due airing, increasing the ventilation at 55°, avoiding cold currents, and allowing an advance of 5° to 10° from sun heat and corresponding ventilation. A night temperature of 40° to 45° is sufficient until the blossom is well advanced for expansion, when it should be gradually raised to 50°. Syringe the trees in the morning and early afternoon on fine days until they show the anthers, when damping the borders and paths will be sufficient, admitting a little air constantly, with a genial warmth in the pipes. When the pollen becomes ripe artificial fertilisation may be resorted to. If water is wanted give a thorough supply, affording liquid manure to weakly trees, but warmed to the temperature of the house. Where the blossom buds are superabundant remove those on the under side or at the back of the trellis by drawing the hand reverse way of the growths.

Succession Houses.—These should be kept as cool as possible by free ventilation. The house to be started early in February, and the trees not previously having been forced, should now be closed, but if regularly started at that time they will not require any inducement to start at the proper time. The borders must be brought into a properly moist condition, merely excluding frost, and ventilating fully above 50°. Push forward the pruning and dressing of the trees in late succession houses, thoroughly cleansing them, securing the trees to the trellis, ventilating and keeping them as cool as possible. If necessary supply water at the roots, or liquid manure to weakly trees.

Vines.—*Earliest Houses.*—The weather having been mild and wet great care is necessary in ventilating on a recurrence of sharp and cold weather, for draughts injure the foliage, crippling the growths, and causing them to become stunted; but some air is necessary to prevent the leaves becoming thin and poor in texture, as they do in a confined atmosphere, and in that condition are liable to be scorched, and fall a prey to red spider. Disbud when the best shows for fruit can be distinguished; tie down the shoots before they touch the glass, taking care not to bring them down too sharply, or to tie too tightly. Stop two or three joints beyond the bunch, not, however, acting upon any rule of thumb principle, but be guided by the space at command, extending the stopping where there is room, and restricting it to one joint where limited, securing as far as possible an ample and full supply of foliage

fully exposed to light. Do not burden the Vines with superfluous bunches, one on a shoot is sufficient, for overcropping and overcrowding are great evils. As the bunches come into flower maintain a day and night temperature of 70° to 75°, falling 5°, however, during the night, and keep the atmosphere rather drier. Where fermenting materials are used on inside borders the heat must not be allowed to decline, but let the heap be turned and replenished as necessary. Outside borders must have attention, which will be slight, provided they have been covered with leaves and dry fern or litter; but where fermenting materials are employed they must be renewed, keeping up a good heap of Oak leaves and stable litter in the reserve ground to admit of a supply being obtained readily as required.

Houses to Ripen the Fruit in June.—Start the Vines at once. Supply the inside border thoroughly with water slightly in advance of the mean temperature of the house. To economise fuel employ fermenting materials within the house, throwing them into a ridge on the floor, and turn them frequently to liberate the ammonia and maintain a genial warmth and moisture constantly, adding fresh material as necessary. Where fermenting materials are not available, the surfaces, other than the Vines, may be sprinkled with liquid manure daily, neat stable or cow-house drainings being diluted with five times the bulk of water, and using about 3 gallons per square rod. The temperature of the house be 50° to 55° by artificial means, and 65° from sun heat. If the roots are outside they will need protecting with a good thickness of dry leaves, litter, or fern. This will secure to them a more uniform temperature, and is a necessity for preventing the soil becoming frozen. It is often better than fermenting materials that are allowed to become cold through not properly attending to them for maintaining the heat. Where the border has been exposed up to now it will be little warmer than the surrounding ground, and a good bed of fermenting material can be used with advantage, placing it on the border about 18 inches thick. This will to some extent warm the soil and encourage the growth of the roots, but it must be removed by the time the sun gains power to warm the ground, leaving enough for a mulch.

Houses from which the Grapes have been Cut.—Prune the Vines without loss of time, and when the cuts are dry dress them with best French polish, confining the dressing exclusively to the wounds. Early pruning not only avoids danger of bleeding, but insures complete rest, albeit the pruning buds profit in plumping and preparing for a good start. Cut to a sound round bud as near the base as possible. Some Vines, however, do not prove very satisfactory when closely pruned. The operator must act accordingly, and choose the second to fourth bud, or the best bud on firm well-ripened wood wherever situated. This will cause the spurs to become long, but that can be obviated by training a shoot from the base to displace it after bearing, and the Vine will be all the better for the extra foliage, showing it in the finish of the crop.

Remove all loose bark, avoid peeling and scraping into the quick or live bark, washing the rods with soft soap and water, and after thoroughly cleansing the house dress the Vines with an insecticide. If there have been any fungous pests use a solution of green vitriol (sulphate of iron), 1 lb. to a gallon and a half of tepid water (15 per cent. solution), applying with a brush to the rods. Clear away all loose soil or mulching, supply fresh lumpy loam in its place, and sprinkle about ½ lb. of the following mixture per square yard when the Vines are in need of substantial support. Dissolved bones, dry and crumbling, three parts or lbs.; muriate of potash, two parts; sulphate of magnesia, one part; air-slaked lime and soot in equal parts, four parts, mixed. If only moderate support be needed use half quantity, and supply the other about the time the Vines are fairly in leaf. Keep the house as cool as possible to secure complete rest.

Late Grapes.—Maintain a mean temperature of 50° for Muscats 5° less for other varieties that have finished late, with a dry atmosphere where such are hanging. Examine every bunch at least twice a week, and remove any decayed berries. Ventilate the house on fine days, and keep it closed when the weather is damp; but a gentle warmth in the pipes is necessary to prevent the deposition of moisture on the berries. It is hardly possible to keep Grapes in good condition beneath leaky roofs, and it is a capital plan to cut the Grapes, the ends of the stems being inserted in bottles of rain water secured in an inclined position, so as to admit of the berries hanging clear of the bottles. Some put a piece or two of charcoal in each bottle to keep the water sweet. Any dry room will be a suitable place where an equable temperature of 40° to 45° is maintained. Cutting the Grapes admits of the Vines being pruned, the house cleansed, and the rest thus given is very advantageous to the Vines, the house being kept cool and dry.

THE FLOWER GARDEN.

Tuberous Begonias.—Underneath stages, or any place where drip or much moisture reaches the pots, boxes, or pans in which the tubers are wintered are not the proper positions for storing these. Drip is particularly injurious, and may lead to the loss of numerous tubers, and, in any case, moisture is apt to promote an early weakly growth, whereas a later and much stouter growth is most desirable. It is advisable, therefore, to turn out tubers from boxes and such like, and after clearing much of the old soil from them, pack them more closely together in sand. They can then be stored in cool sheds, taking good care, however, to well protect them from severe frosts. March will be quite soon enough to start the smallest tubers in gentle heat with a view to growing the plants to a good size prior to bedding out, while strong old tubers may well be retarded till late in April. Propagating by means of cuttings is best practised during the summer, but old tubers with

several shoots may, after the latter are about 2 inches long, be cut into several pieces and started in gentle heat. The majority will survive and strong plants be had for the flower beds.

Raising Seedling Begonias.—Tuberous Begonias are effective either in masses of one colour or in mixture, nothing but a frost putting an end to their floriferousness. The erect flowering strains are the most showy, those with drooping flowers, though also pretty, being most effective in baskets and vases. The preference should be given to quite new seed, and this germinates most surely if sown before the bright sunshine and cold winds of February and March are felt. Added to this, early raised seedlings can be grown to a size large enough to bed out the same season, though it is not to be expected they will rival the two-year-old tubers. Sow early and sow thinly, and thereby avoid losing numerous seedlings by damping. Prepare two or three pans by draining them freely, and filling up firmly and evenly, with finely sifted compost largely composed either of very good leaf soil or peat. Avoid all use of sand in the compost, and more particularly on the surface. Gently moisten the soil, and then sow the seeds on the surface, but do not distribute any fine soil or sand over it. Set the pans on a mild hot-bed, cover closely with squares of glass, and shade heavily. There ought to be no necessity to moisten the soil; allowing it to become dry and then watering, however gently, being almost certain to dislodge either the seeds or the seedlings. In less than a fortnight germination should have taken place, when light must be admitted and the glass gradually tilted. Water very gently indeed and prick out the seedlings into pans of fine light soil before they become crowded.

Dwarf Lobelias.—These again can best be raised from seed, the strains as supplied by the leading seedsmen being as near perfect as they can be. The seeds being very small ought to be sown much as advised in the case of tuberous Begonias, and if not unduly exposed to a dry heat or strong sunshine will germinate quickly and surely. Sow thinly, crowded seedlings being peculiarly liable to damp off. Raise abundance of seedlings though, as it is not often too many are available. Cuttings of these Lobelias root readily in close frames or boxes placed in a fairly brisk heat, but not if they have been kept in a dry heat and induced to become hard. A newly started vinery, the plants not being placed very near to the hot-water pipes, is suitable for stock plants, and if there are enough of these the plan of propagating by division answers best. If kept in gentle heat the old plants will grow strongly, and directly the young shoots commence to emit roots near to where they start from is the time to divide them into as many pieces as possible. Being dibbled rather thickly into boxes of fine light soil and kept in gentle heat all will grow and be ready for temporarily bedding-out in frames in April.

Ageratums.—Though scarcely so true to name as Lobelias, very serviceable plants can yet be raised from seed, the strains including a good dwarf white. The seeds ought to be sown soon and somewhat thinly, covering very lightly with fine soil. It will germinate quickly if the pans or pots are partially plunged in a gentle hotbed and kept closely covered with squares of glass as well as heavily shaded. The seedlings being duly pricked out in boxes of fine soil, topped once, and then either given more room in other boxes, or better still, be temporarily bedded out in frames or pits, fine bushy plants will be ready for the flower beds when required. Cuttings of young flowerless shoots root readily in a moderately brisk heat, these, in their turn, affording cuttings so that a good stock of a favourite variety will be available in June. Introduce old plants into gentle heat to cause them to produce young shoots freely.

Various.—If a number of strong old plants of bronze, gold, and silver variegated Zonal Pelargoniums were lifted and potted before being badly injured by frost, these ought now to be introduced into a newly started vinery or other moderately warm house, where they will soon commence active growth and give a lot of good cuttings. Spring-struck cuttings of these are quite as serviceable as any autumn struck, but they must not be taken off the old plants before active growth of the latter has commenced, or otherwise the greater part will fail to root. Much the same remarks apply to the ordinary Zonals and the Ivy-leaved sections. Stock plants of Verbenas ought now to be given a shift into larger pots and placed in gentle heat, a strong heat being most objectionable, and a capital lot of clean sappy young cuttings will then result. Stock plants of Heliotropes, Lantanas, and Abutilons to be similarly treated, and if early cuttings of Fuchsias are required prune a few old plants and start them in gentle heat at once. There would be time to prepare a number of small pyramids for bedding out next summer. No cuttings being required, keep the old plants cool, and only moist enough at the roots to prevent shrivelling.

TRADE CATALOGUES RECEIVED.

- G. Bunyard & Co., Maidstone.—Seeds.
- H. Cannell & Sons, Swanley.—Seeds.
- J. Carter & Co., High Holborn, W.C.—Abridged Seed List.
- W. Clibran & Son, Altrincham.—Seeds.
- W. J. Godfrey, Exmouth.—Chrysanthemums.
- Hogg & Robertson, 22, Mary Street, Dublin.—Garden Seeds.
- W. A. Manda, South Orange, N.J.—General List.
- A. Robinson, 1A, Bishopsgate Street Without, E.C.—Seeds.

THE BEE-KEEPER

SEASONABLE NOTES.

WORK FOR THE NEW YEAR.

It may appear somewhat premature to suggest the carrying out of work in the apiary at this dull season. Still there are many things in connection with bee management that may now be profitably carried out. Some work if left until the days lengthen, bringing an increase in our daily duties, will probably be postponed; and thus the first step towards a successful honey harvest will have been lost.

It is an advantage at this season to take an inventory of all goods in hand, and to make a note of probable requirements for the coming year. If hives are required they may be made at home, and will then be in readiness when required during the busy season. These as far as possible should all be made of the same size, care being taken in correct measurements. This will save a great amount of worry and trouble when time is valuable. If made with loose floor boards so much the better, as it is then an easy matter to replace a damp board with a dry one.

Should no dampness enter the hive, the floor board ought to be well cleaned at least twice a year owing to the *débris* which will accumulate from the uncapping of the cells. Either spring or autumn is the best time to carry out this operation. All that is required is to place a clean board on the stand, and lift the hive bodily off the old one, which after being thoroughly cleaned may be used again. When worked on this plan the bees are not disturbed, the whole operation not taking more than a minute to perform. Compare this system with that which involves the cleaning of the boards attached to the hives, and the advantage of the former will be at once appreciated.

Hives should be painted with three coats of white lead outside; the inside is better not painted. If this is done a few weeks before using them, and they are stored in a dry airy place, the smell arising from the paint will soon pass away. Goods that it may not be convenient or possible to manufacture at home should be ordered of any dealer in bee appliances, who will supply them at a cheaper rate when ordered during the winter months. All will then be in readiness when required for use.

THE WEATHER.

The temperature being low bees are at rest and remain quiet in their hives. If the hives are rainproof no harm will happen to them, and if a supply of stores is within their reach they will come out strong and healthy in the spring.

To the ordinary observer the excessive rainfall may be somewhat oppressive, but to the bee-keeper it means no lack of moisture to the roots of the trees and plants, which will each in its season provide the sweet nectar and pollen without which bee-keeping would end in failure.

Already the early spring-flowering bulbs are well above the ground and growing freely. Many of the hardy plants and trees are forward; odd flowers may be seen on many, and should the weather continue open they will be fully in bloom earlier than usual, and bee-keepers may with confidence look forward to a more prosperous season in the year on which we have just entered.—
AN ENGLISH BEE-KEEPER.

EXPORTATION OF PLANTS TO ITALY.—We learn from a contemporary that Mr. Neville-Rolfe, the English Consul at Naples, states that the omission to include Great Britain in the Phylloxera Convention because of the British Isles being free from phylloxera, has caused a serious loss to that branch of British trade which occupies itself with the exportation of plants and grafts. To import plants into Italy from England requires the permission of the Italian Ministry, which must be obtained through Her Majesty's Ambassador at Rome. It is obvious, however, that the transit must be as rapid as possible, and any delay at the frontier must be guarded against. The permit must, therefore, be so timed as to arrive at the frontier as nearly as possible when the plants do, for if it arrives before it is pigeon-holed and forgotten; if after, the plants are kept waiting till it comes. In short, the present state of affairs gives much trouble, and is practically prohibitory of import. If it were possible for England to be included in the convention before next spring it is confidently asserted by Mr. Neville-Rolfe that an important market would be thrown open to English nurserymen. There is, he states, a large market in Italy for new sorts of Roses, bulbs, and grafts generally, there being many amateurs who spare neither labour nor money over their flower gardens, and many others, both professionals and amateurs, who would, if they could, introduce many plants, and especially many grafts, because the latter are portable. As to grafts, it is the custom to use in Italy much stronger scions than are usually adopted in England, and those who export them should recollect this.

TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff after remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Pronunciation of French Names (J. H. S.).—If you send a list of names the matter shall be considered.

Gladiolus Nanceianus and G. Childs (A. L. Rosus).—These are presumably allied to the Lemoinei section, and succeed admirably either planted out or in pots, the size of the pots varying according to the size of the corms, about the distance of the diameter being allowed between each, and half that from the sides of the pot. Good turfy loam three parts, fibrous peat one part, and half a part each leaf soil or well-decayed manure and silver sand form a suitable compost, draining the pots well. Plunge in a cold frame till started into growth, and as they require more room move to a cool greenhouse, giving all the light possible, with air on all favourable occasions.

Implement for Placing Weed-killer in the Centre of Weeds on Lawns (J. H., Subscriber).—There are several implements such as you require, but we can only refer to those of firms which have advertised in our columns. 1, The "Acme" Automatic Weeder, manufactured or sold by the Acme Chemical Company, Limited, St. Stephen's Street, Tonbridge, Kent, consists of a steel cutting plate at the end of a tubular shaft or handle. The handle being filled with the "Acme" Weed-killer solution, when the cutting plate severs the weed at the root, by an ingenious mechanical action a small quantity of the poison is allowed to flow from the tubular handle on to the root of the weed. The weed is therefore cut and poisoned by one operation, so that it will never grow again. No danger to the useful herbage results, as the poison is put in the ground in very small quantities, and does not prejudice any, or very little, but the weed. 2, The Wikeham Patent Weed Eradicator, made or sold by the Boundary Chemical Company, Limited, 211, Great Howard Street, Liverpool, comprises a tubular staff (which may be used as a walking-stick), 36 inches long, fitted with a spike and self-acting valve. The upper part being filled with weed-killer, it is so arranged that by merely stabbing the point into the plant enough liquid is released into the tissues to destroy it. When not in use the point is protected by a cover, which may be screwed on or off as desired. The tube holds about three-quarters of a pint of liquid, and is sufficient to kill over 100 weeds at a cost of one farthing. The price of each implement is 8s. 6d., post free. We have used them with great success on lawns overrun by plantains and similar large weeds, getting rid of the latter, and securing a much better and easier-kept sward.

Ammoniacal Liquor for Disinfecting Subsoil in Cucumber and Tomato Houses (Cross).—Ammoniacal liquor from gasworks is, as you say, "strong and poisonous." It, nevertheless, is one of the most powerful fertilisers and very destructive of insect life, hence one of the best dressings for grass land, such as orchards and mossy meadows or pastures that harbour cockchafer, gardenchafer, rosechafer, and other grubs. In winter time it may be used in the proportion of one part gas liquor to two parts water; but during growing time one part ammoniacal liquor to five parts water is a proper solution. It browns the grass somewhat, but is followed by sweet herbage in plenty, which cows prefer to any other, leaving the other parts of a field for that to which the gas liquor solution has been applied. In reply to your questions, "1, Whether it is likely to kill the microbes?" if by microbes you mean the bacteria that act by converting ammoniacal substances into nitrates, or aid plants in assimilating or appropriating free nitrogen, we shall say no, for though the growth following the application of the ammoniacal liquor is due to the ammonia supplied, there is no cessation of their activity; but if you refer to eelworms you will find, if you like to try the experiment, that a one-third solution destroys them in a few minutes, sometimes seconds. The difficulty is to get the solution to them, as they are nobody knows where during the winter, therefore the substances intended for their destruction are uncertain in action simply on that account. "2, Whether it would be injurious to the roots of the Cucumbers supposing it was used a week or two beforehand only?" The answer is, it would not injure the Cucumber roots, but greatly benefit

them, as some ammonia would be evolved and pass upwards, besides the subsoil would be enriched for a considerable time. But the most danger would be in respect of the ammonia passing into the air and being confined in the house. This will kill everything in it if the vapour has free course upwards, but if covered with soil there would be an end of it; besides, the conversion would proceed rapidly in the soil and the smell soon pass off, then there would not be any danger. We should not use the gas liquor stronger than one part to three parts water. If you find anything alive in the soil of an animal nature after treatment please forward a specimen; but remember, proof must be given that the soil in which it was found had been thoroughly moistened with the solution. Usually eelworms come from places that have not been reached by disinfectants, and work to their heart's content on plants growing in soil from which the deterring effects have passed off, as is evidenced by the first crop not suffering, but the later ones being infested.

Tupa Feuilleti (A. J. B.).—A very distinct plant is the peculiar Tupa Feuilleti, and when growing vigorously, as it does in a few favoured districts, it is also very handsome. It requires, however, a rather warm



FIG. 14.—TUPA FEUILLETI.

and sheltered position, and even then needs careful protection in the winter, and some, to make it perfectly safe, place it in a greenhouse at that time of year. Under cultivation this plant attains a height of 4 or 5 feet, in exceptional cases even exceeding that, but it is often seen not more than 3 feet high. Its flowers, which are bright red, with the apex of the corolla strongly recurved, are produced on the upper portion of the stem from the axils of the leaves, and form a dense spike. It is a late-flowering plant, being frequently at its best in September or even in October. The woodcut shows the upper portion of a stem greatly reduced.

Mushrooms Discoloured (A. W. F.).—The Mushrooms appear affected by some noxious vapour, such as that of sulphurous acid gas in presence of a superabundance of moisture, which has destroyed the outer tissues in proportion to their tenderness, the buttons being blackened through and the larger Mushrooms affected on one side or some parts only. There is no trace of disease, the damage being wholly external and produced by something of a noxious nature, such as the fumes from live coal or cinders, which we have suffered from in cases where the Mushroom house has adjoined the stovehole and the furnace fires been raked out, causing the sulphurous fumes to pass through the imperceptible chinks in the wall separating the two places. The appearance of the Mushrooms exactly coincides with the injury caused by town fogs to tender vegetation, which have prevailed of late and done more harm than frequently occurs during severe frosty weather. The blackening sometimes occurs from an excess of carbonic acid (dioxide) gas, such as in very close and damp places, the Mushrooms being practically poisoned by their own emanations, for, though plants, they are of the class that live like animals, and as such require a

plentiful supply of oxygen. Thus the Mushrooms may only be suffering temporarily from the excessively wet and foggy weather, the house being kept very close and moist, this being so considerable as to remain on the Mushrooms indefinitely, and so interfere with the needful transpiration. In that case a little air would afford the desired relief, taking care not to dry the air too much or admit noxious fumes. The foregoing remarks are made in the hope of leading to a satisfactory solution of the injury or its cause, which is only ascertainable by a due diagnosis of the case and the circumstances, for there is no disease of a parasitic nature.

Names of Fruits.—Notice.—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. *In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing.* The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. *They should be sent on the first indication of change towards ripening.* *Dessert Pears cannot be named in a hard green state.* (J. R.).—1, Wellington, splendidly coloured; 2, a seedling from Blenheim Pippin; 3 and 4, unknown; 5, Glou Morceau. (B. C.).—1, Court Pendu Plat; 2, Bramley's Seedling; 3, probably a local seedling, useless; 4, Warner's King; 5, possibly Dr. Harvey; 6, Royal Russet. (E. D.).—All your specimens reached us in the form of pulp. They ought to have been sent three or four weeks ago.

COVENT GARDEN MARKET.—JANUARY 13TH. FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, $\frac{1}{2}$ sieve	1	3	to	2	Lemons, case	11	0	to	14
Elberts and Coobs, per 100 lbs.	40	0		45	Plums, $\frac{1}{2}$ sieve	0	0		0
Grapes, per lb.	0	6		1	St. Michael Pines, each ..	3	0		8

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Asparagus, per 100	0	0	to	0	Mustard and Cress, punnet	0	2	to	0
Beans, $\frac{1}{2}$ sieve	0	0		0	Onions, bushel	3	6		4
Beet, Red, dozen	1	0		0	Parsley, dozen bunches ..	2	0		3
Carrots, bunch	0	3		0	Parsnips, dozen	1	0		0
Cauliflowers, dozen	2	0		3	Potatoes, per cwt.	2	0		4
Celery, bundle	1	0		0	Salsify, bundle	1	0		1
Coleworts, dozen bunches ..	2	0		4	Seakale, per basket	1	6		1
Cucumbers	1	0		2	Scorzonera, bundle	1	6		0
Endive, dozen	1	3		1	Shallots, per lb.	0	3		0
Herbs, bunch	0	3		0	Spinach, pad	0	0		4
Leeks, bunch	0	2		0	Sprouts, half sieve	1	6		1
Lettuce, dozen	1	3		0	Tomatoes, per lb.	0	4		0
Mushrooms, per lb.	0	0		0	Turnips, bunch	0	3		0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (various) doz.	6	0	to	36	Ficus elastica, each	1	0	to	7
Aspidistra, dozen	18	0		36	Foliage plants, var. each	1	0		5
Aspidistra, specimen plant	5	0		10	Genista, per dozen	12	0		18
Azalea, per dozen	24	0		42	Hyacinths, large, per dozen	6	0		12
Chrysanthemums, per doz.	6	0		12	" (Roman), doz. pots	6	0		8
" per plant	1	6		2	Lycopodiums, dozen	3	0		6
Cyclamen, per dozen	9	0		18	Marguerite Daisy, dozen ..	9	0		12
Dracæna, various, dozen ..	12	0		30	Myrtles, dozen	6	0		9
Dracæna viridis, dozen ..	9	0		18	Palms, in var., each	1	0		15
Erica, per dozen	9	0		12	" (specimens)	2	1		0
" hyemalis, per dozen	10	0		15	Poinsettia, per dozen	9	0		12
Euonymus, var., dozen ..	6	0		18	Primula sinensis, per dozen	4	0		6
Evergreens, in var., dozen	6	0		24	Solanums, per dozen	9	0		12
Ferns in variety, dozen ..	4	0		18	Tulips, dozen pots	6	0		9
Ferns (small) per hundred	4	0		6	" in boxes, per dozen	0	8		1

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Arum Lilies, 12 blooms ..	4	0	to	8	Mignonette, dozen bunches	3	0	to	6
Asparagus Fern, per bunch	2	0		2	Mimosa (French) per				
Azalea, per dozen sprays ..	0	6		1	bunch	1	0		1
Bouvardias, bunch	0	6		0	Narciss, White (French),				
Carnations, 12 blooms ..	1	0		2	dozen bunches	1	6		2
Christmas Roses, 12 blooms	1	0		1	Narciss, Yellow (French),				
Chrysanthemums, dozen					dozen bunches	2	0		4
bunches	3	0		9	Orchids, various, per dozen				
Chrysanthemums, twelve					blooms	1	6		12
blooms	2	0		6	Pelargoniums, 12 bunches	6	0		9
Daffodils, dozen blooms ..	0	9		1	Pyrethrum, dozen bunches	1	6		3
Eucharis, dozen	3	6		4	Roses (indoor), dozen ..	1	0		2
Gardenias, dozen	3	0		5	" Tea, white, dozen ..	1	0		2
Geranium, scarlet, doz.					" Yellow, dozen (Niels)	6	0		9
bunches	6	0		9	" Red, dozen blooms ..	2	0		3
Hyacinths (Roman), 12					" Safrano (English),				
sprays, and per bunch ..	0	6		1	dozen	1	0		2
Lilac, White (French), per					" Pink, per dozen	3	0		6
bunch	3	6		5	Smilax, per bunch	3	6		5
Lilium longiflorum, twelve					Snowdrops, dozen bunches	2	0		4
blooms	6	0		8	Tuberose, 12 blooms ..	0	6		1
Lily of the Valley, 12 sprays,					Tulips, dozen blooms ..	0	6		1
per bunch	0	9		1	Violet Parme, per bunch ..	3	0		4
Marguerites, 12 bunches ..	4	0		6	" per doz. bunches ..	1	6		2
Maidenhair Fern, per dozen					" (French), per dozen				
bunches	4	0		8	bunches	1	6		2



THE AGRICULTURAL RATING ACT.

THERE is no doubt in the mind of any unprejudiced person that the industry of agriculture has fallen on evil times, and that the profits thereof are, even under the most favourable conditions, small as compared with those of many mercantile and manufacturing industries; but though agriculturists may be poor, they have pride enough to renounce any claim to what may be, and in fact has been, called an Agricultural Relief Bill. Farmers do not come for alms, but for justice. In the case of machinery, repairs have to be paid for by the user; when the machine is worn out it is sold for its value as old metal.

If this practice is applied to the human machines employed by farmer and manufacturer, then relief to the poor should come from the pockets of those who have employed them. If this principle were carried out, mills and ironworks, collieries, and similar hives of industry would pay poor rates according to the hands they employ rather than according to the annual value of the ground they occupy. As this might be objected to as a tax on labour, there are two alternatives which give to the land certain measures of justice; one is to charge all poor, highway, and other rates on an income tax basis—that is, in proportion to ability to pay. This would be the most satisfactory solution to the anomalies of rating, but the times are not ripe for its application.

The Government has adopted in its place a plan by which a portion (one half) of the rates on agricultural land is returned to the occupiers thereof, or rather is not collected, the remaining half of the local expenditure being provided for by grants from the imperial exchequer. This means when put in practice that it is paid out of income tax, for otherwise the rate of income tax would in all probability be reduced; thus the money at any rate falls on shoulders able to pay; whether in strict justice they are in all cases those who should pay we are not now prepared to discuss.

The Act as regards most of its clauses is a very simple one, but one portion of it has raised many points of difference between rating authorities—we mean the clauses defining what is and what is not agricultural land. We say defining, but to be correct we should say *not* “defining,” for this very important duty is left to the assessment committees to determine, subject to the approval of the surveyor of taxes for the district. The decisions of these authorities are subject to the appeal of any aggrieved ratepayer to the justices in quarter sessions, just as in any ordinary assessments.

The surveyors of taxes are themselves by no means unanimous in their ideas as to what should be included in the Agricultural Land Schedule, for whereas many would include horticultural, glass structures used by market gardeners, others object to do so and we think with considerable reason, for the buildings of the farm are as necessary a part of it as the structures of the market garden. The calf shed, which is the rearing house of the farm, is very closely analogous to the greenhouse in which are reared the Celery plants of the market gardener, and should be put in the same category, so that farm buildings being excluded nursery structures should be also.

Another point of difficulty has been the definition, for the purposes of the Act, of the word Park. The authorities appear to have adopted a proper view in considering grass land to be a park when it is used, with a house, for purposes of recreation rather than farmed in the ordinary sense of the term. On the other hand, land let to a tenant farmer, though it be situated around a mansion and be called a park, would not be rated as such, but as ordinary farm land. There are three requisites to constitute a park in law:—1, A Royal license; 2, Inclosure by a wall or fence; 3, Its occupa-

tion by beasts of chase, such as deer, and these strictly legal definitions would probably be taken as the legal meaning if it ever came to a court of law for decision.

Another point of disagreement has been the inclusion or exclusion of game. Where game—i.e., shooting rights—has been let with the land it has been rated with it as part of the land; but where it has been let separately and rated separately, whilst numerous authorities have decided that it shall not benefit by the Act, a few have been of a contrary opinion. We rather incline to look upon game as something quite apart from farming, and should prefer to see it rated as a means of recreation rather than as part of a farm, even if the tenant have the sporting rights in his own hands. He will benefit considerably by the Act, and can afford to pay full rates on sporting rights if others do the same. Thus, if no shooting at all be included in the schedule no one can grumble.

Many persons have an idea that the ratepayers will benefit under this Act during the current half year, but this is not so. True, a payment is to be made by Government to the local authorities before the 31st March next; but this money is intended for reduction of agricultural rates in the ensuing half year, and has been taken no account of in the estimates of the local authorities for the present half year.

WORK ON THE HOME FARM.

We have had more heavy rain, and the land is as wet as at any time since harvest; there are certainly less floods, but the soil is soaking with the moisture that may be wrung from it with very little pressure.

Manure carting having been completed for the present, many farmers are now short of suitable work. Plenty of employment can be found for the hands at fencing, thrashing, or amongst Potatoes, Carrots, and other roots; but, except the delivery of produce, there is little to do for the horses, and this state of things must prevail until we have a spell of fine weather.

Sheep on Turnips still have a bad lair, and we are sorry to say the roots are disappearing very rapidly. Sheep generally are doing well now, and their bill of health is much improved. We never saw so many cattle wintering out as in the present season, this being an arable district, and yard keeping under ordinary circumstances abundant. It is therefore evident that farmers anticipate a scarcity of keep, and are husbanding their resources. The pastures, being very soft, are much cut up by the hoofs of the cattle, and will have to be well rolled before spring.

Farmers intending to use basic slag for roots would do well to apply it early, so as to give it time to attain solubility before the plants require it. One of the objections to basic slag has been the difficulty of sowing it without a special drill. It may not be generally known that if water be sprinkled on basic slag from a rose at the rate of about a gallon to 1 cwt. and the slag be turned over immediately and well mixed, that it may then be sown by a man without any ill effects; in fact, he might almost sow it in his Sunday clothes. It should, however, be sown the same day as it is damped.

We see a neighbour planting Cabbages; his plants are small but healthy, and we are inclined to follow his example at once, if we can procure good plants. We generally grow our own, but ours have grown so badly, owing to the wet, cold autumn, that they are quite unfit to plant at present, being hardly large enough to handle with any ease. Wheat has made marvellous progress the last fortnight, and may be winter-proud even yet.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.: Long. 0° 8' 0" W.: Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
		Barometer at 32°, and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday	3	30.247	40.6	40.0	S.	38.6	45.0	24.1	47.5	24.8	—
Monday	4	30.161	36.6	34.9	S.	38.2	43.0	34.6	43.0	28.2	0.052
Tuesday	5	29.979	42.4	42.2	S.	38.3	43.2	34.1	46.0	27.0	0.104
Wednesday	6	29.737	38.1	37.2	S.E.	38.6	46.9	34.1	52.8	27.1	0.100
Thursday	7	29.752	44.8	44.2	S.E.	39.1	46.6	33.7	49.7	32.2	0.236
Friday	8	29.674	40.8	40.2	N.	39.9	42.2	39.3	42.2	33.9	0.226
Saturday	9	29.661	38.3	38.3	N.	40.1	43.4	38.9	43.8	38.1	0.633
		29.902	40.2	39.6		31.0	44.3	35.5	46.4	30.2	1.356

3rd.—Fair, but sunless.

4th.—Overcast almost throughout.

5th.—Dull and damp early, continuous rain from 8 A.M. to 11 A.M.; then dark to 1 P.M., and fair after.

6th.—Bright sun all morning; fair afternoon and evening.

7th.—Rain from 4 A.M. to 8 A.M.; dull day and dark at times, and rain from 7 to 10 P.M.

8th.—Continuous rain from 6 A.M. to 10 P.M.; then drizzle to midnight.

9th.—Continuous rain or drizzle.

Temperature near the average, but a very dull, damp, rainy, and uncomfortable week.—G. J. SYMONS.

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CARTERS SPRINGTIDE.

A first early Marrow Pea Height 2½ feet. Mr. W. A. COOK says: "It is very early; we gathered June 15th."

In Sealed Packets, 2s. 6d. per Pint, 4s. per Quart, post free.

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Another fine Marrowfat, with very long pods. It was amongst the Earliest of the large podded section on our Farms last year. Height, 2½ feet. Stock very limited.

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A cross between Chelsea Gem and Stratagem, combining the best points of both these excellent kinds. Very early. Height, 1½ feet.

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A New Maincrop Marrow, the result of crossing and interbreeding from the three popular varieties, Stratagem, Queen, and Autocrat. Its pods are amongst the largest we have ever seen, and we have counted as many as thirteen Peas in a pod. Height, 3 feet.

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CARTERS DAISY.

Although this remarkable Pea has been out a few years, it is worthy a position in the most up-to-date company; and those who have not yet grown it should give it a trial. Dr. MASTERS, F.R.S., Editor of the *Gardeners' Chronicle*, who inspected our crop, reported fully upon its merits in a lengthy article. A customer recently sent in a pod containing twelve fully-developed Peas; and there is no doubt it holds the field as the longest-podded dwarf Marrow yet raised. Height, about 1½ feet.

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These are highly selected types of the originals, as introduced by us several years ago. Splendid for exhibition.

CARTERS MICHAELMAS.

As its names implies, this fine Marrow Pea is of the greatest service as a "Last-of-All" crop. It was well-grown last season in the Pea trials conducted by the Royal Horticultural Society, and the only late Pea considered worthy of their Award. Height, 2½ feet.

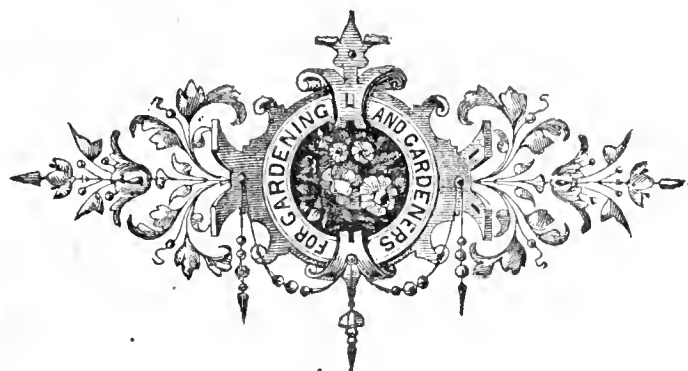
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THE QUEEN'S SEEDSMEN,

237, 238, & 97, HIGH HOLBORN,
LONDON, W.C.



Journal of Horticulture.

THURSDAY, JANUARY 21, 1897.

COMMEMORATING THE QUEEN'S REIGN.

FROM the Report of the Royal Horticultural Society for the year 1896-97 we find that the Society has decided to celebrate the occasion of Her Majesty's unexampled reign—not by a special flower show in London, but in a broader, more tangible, and more permanent way.

For ourselves, having in view the Temple Show occurring before the completion of the historical event, and the Queen's desire that there should be no premature celebration, we could not see the practicability of another show being arranged under the auspices of the Society in London of such magnitude as would befit the occasion, and which would command success.

So great and manifold will be the celebratory events in London this season that it would be a matter of extreme difficulty to provide a flower show in the metropolis on such a scale as to concentrate public attention sufficiently to accomplish the desired object. It might be done, of course, as if British horticulturists were to unite forces, and display to the fullest extent their resources, an exhibition of extraordinary magnitude would be produced, and this might—though the matter is problematical—"take the town by storm;" then, and then alone, would it answer the purpose of its production. Failure would be humiliation, and the project would be so entirely speculative that, having regard to weather contingencies among other counteracting influences, the endeavour could only be regarded as a venture, and the result essentially a matter of chance.

The Council of the Royal Horticultural Society has, and in our opinion wisely, decided not to play a game of chance over the great event of the year, and one which in all human probability will be memorable for centuries to come. Stand is taken on firmer ground, and instead of risking the investment of a large sum of money to be won in the way of prizes, spent and forgotten, something is provided that will possess much more than mere money value—an enduring and appropriate memento of an event which has no parallel in the annals of any nation—and will therefore be cherished by all on

whom it may be bestowed, and to whom it may descend—the "Royal Horticultural Society's Victoria medal."

This form of celebration has, we are informed by the report, been decided upon after considering "various proposals" which were found impracticable, and we cannot do otherwise than think the decision a happy one. Moreover, the proposal covers a wider area than any exhibition would, inasmuch as the recipients of the medal will not be confined to exhibitors of produce only. Some of these, it may be expected, will be recipients, for they have done much for the advancement of the art of which they are able exponents, and they will have another chance at Shrewsbury; but it is conceivable there are others who have done something too outside the competitive arena, yet diligent workers all the same in the wide domain of horticulture.

As the correspondence relating to the subject under notice cannot be otherwise than interesting to many readers we publish the following letters with which we have been favoured:—

Royal Horticultural Society, 117, Victoria Street, S.W.
December 18th, 1896.

SIR,—I am desired by the Council of the Royal Horticultural Society to ask you to lay before Her Gracious Majesty the Queen, Patron of the Society, a proposal which they beg leave to bring before their Fellows for the establishment of a medal or medallion in celebration of the attainment by Her Majesty, in 1897, of the sixty years of her happy, prosperous, and beneficent reign.

With Her Majesty's gracious permission and approval, the Council wish to name their medal "The Royal Horticultural Society's Victoria Medal;" and their proposal is that it should be awarded by the Society, "Honoris Causa," to a certain number of persons distinguished for their services to horticulture, or eminent in the science and art of gardening.

The Council express a confident belief that no such distinction exists at present, and that the institution of such a "Medal of Horticulture" would be received with marked favour by Her Majesty's garden-loving subjects. They therefore venture humbly to hope that their proposal may meet with Her Majesty's gracious consent and approval.—I have the honour to be your obedient servant,

(Signed) TREVOR LAWRENCE, *President*.

To the Right Hon. Sir Fleetwood Edwards, K.C.B.

Osborne, December 23rd, 1896.

DEAR SIR,—In reply to your letter of the 18th inst., which I have laid before the Queen, I am commanded to express H.M.'s regret that she can only refrain in this instance, as in all similar cases, from giving any personal opinion with reference to any specific proposal for the commemoration of the sixtieth anniversary of the reign.

At the same time the Queen has no possible objection to raise to the establishment of the medal referred to, or to the name that it is proposed should be given to it—and they would appear to be points that rest with the Council of the Royal Horticultural Society.—I am, dear Sir, yours faithfully,

(Signed) FLEETWOOD J. EDWARDS.

Sir Trevor Lawrence, Bart.

Clearer sanction on the part of Her Majesty could not be expected, indeed was not possible under the circumstances, and we have only to say now that we do not envy the Council of the Royal Horticultural Society the task of awarding this "Victoria Medal of Horticulture." We now pass to another most worthy proposition, and if it does not "catch on" we shall be both deceived and disappointed.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The report of the Committee of this noble Institution, of which Her Majesty has been the Patroness for forty-five years, appears on another page. In that report it will be noticed that it has been "determined," or, to be accurate, determined to "endeavour;" but we think it is enough to "determine" that a "Victorian Era Fund" shall be established for the proposition to become an accomplished fact, especially as the object is to produce a fund sufficiently large to enable the Committee to give temporary assistance to applicants who are waiting to be placed on the pension list, and it is already "resolved" to send on June 21st next the sum of £5 to each unsuccessful candidate at the present election.

As we cannot make a stronger, and at the same time a more reasonable, appeal on behalf of this Fund than that of the esteemed Treasurer of the Institution, we have pleasure in publishing the following letter, as it will thereby be able to reach the eyes (and

hearts) of some readers, both gardeners and amateurs, to whom, it may be impossible to send a copy direct.

Royal Exotic Nursery, 544, King's Road, Chelsea, S.W.
January 14th, 1897.

SIR,—The extraordinary event—unique in our country's history—of Her Majesty completing, in June next, the sixtieth year of her beneficent reign, demands from us all, I venture to suggest, some special effort testifying to our deep thankfulness for the wonderful progress made in every way by our nation during the past sixty years, and for the many blessings we now so freely enjoy.

Animated by this feeling the Executive of the Gardeners' Royal Benevolent Institution (of which our beloved Queen has been the Patroness for forty-five years) have determined to endeavour to celebrate so remarkable an occurrence by establishing a special fund, to be called "The Victorian Era Fund," the income from which shall be devoted to affording temporary assistance to those applicants who are waiting to be placed on the pension list, and who have been subscribers to the Institution, every friend of which it is felt may be confidently relied upon to do their utmost to help raise a sufficient sum, the interest of which shall be devoted to the benefit of those who, when in a position to do so by becoming subscribers, did what they could to assist others.

The Committee consider that a sum of at least £5000 will be required to enable them to adequately carry out what they propose, and this in addition to the amount required to meet the usual yearly outgoings of the Institution, which exceed £3000 (the sum paid at the present time in pensions alone being £2840), and I, as Chairman of the Committee, appeal to every gardener and lover of gardens in the country to aid us in raising this sum—

First, By giving what he can himself and urging his brother gardeners to do the same.

Second, By earnestly appealing to all lovers of gardens to contribute something to this object.

And I feel certain that, if only every gardener will do what he can, the proposal of the Committee will be fully realised.

Any further information or details of the scheme will be most readily given, either by myself or by the Secretary (Mr. George J. Ingram, 50, Parliament Street, S.W., London), who will also be pleased to forward to any applicant collecting cards or boxes.

Earnestly begging you to give the matter your warmest support, I am, dear Sir, yours faithfully,

HARRY J. VEITCH, *Chairman of Committee and Treasurer*.

A notification accompanies the above appeal, which we also publish with great satisfaction—namely, that at the fifty-eighth anniversary festival dinner of the Institution, to be held at the Whitehall Rooms, Hôtel Métropole, on Wednesday, May 26th, 1897, and over which the Right Hon. Lord Rothschild will preside, the following

DONATIONS, &C., ALREADY PROMISED—

	£	s.	d.
His Grace the Duke of Westminster, President	100	0	0
The Baron Schöller, Vice-President	200	0	0
C. Czarnikow	50	0	0
N. N. Sherwood, Trustee (In memory of Emma Sherwood)	200	0	0
Harry J. Veitch, Treasurer	250	0	0
W. Sherwood (In memory of Emma Sherwood)	100	0	0
E. Sherwood	100	0	0
May Sherwood	100	0	0
George Monro	100	0	0
James Veitch & Sons	250	0	0
Thames Bank Iron Company	21	0	0
A. Watkins	10	0	0
James Hudson	5	0	0
J. W. Seden (Life Subscription)	10	10	0
J. Seden	2	2	0

It will be seen that gardeners have good and generous friends; and in no way can appreciation of the aid thus rendered be so acceptable to the donors as in the army of worthy workers themselves, doing what they can on behalf of an Institution that has done so much for so many to whom its help has proved a blessing in the past, and now, as it will in the time to come. We have yet another communication to append.

To my mind the most encouraging sign of all is to see the rising generation of young gardeners (page 17) supporting the Gardeners' Royal Benevolent Institution. These are the very men wanted to take a practical and enthusiastic interest therein. It is highly commendable and quite possible for every young gardener to save sufficient to make himself a life member before he qualifies for a head place. Doubtless if head gardeners would take up their case and act as treasurers, also choosing the right opportunity of representing the facts to their employers, assistance would be forthcoming in many instances through such a very commendable channel, thereby solving in the most practical way the problem of old age pensions, which agitates the minds of philanthropists and others at the present day.

Where such encouragement is denied when represented properly, there remains the Post Office Savings Bank, open to receive weekly contributions. In gardens where there is one of the official watering can boxes fixed I presume there would be no objection to the appropriation of the contents towards the same assistance.

There is a time in the probationer's life when he feels constrained to make some kind of provision for the proverbial rainy day; but as he knows little or nothing of this Institution he is easily attracted to the local lodges. I have not one word to say against them; on the contrary, some are known to be most worthy and well managed, but the prudent man will compare the results. In the "Royal," for one payment of 10 guineas he is eligible at sixty if needy, or sooner if incapacitated, to receive by right the sum of £20 per annum for life without further trouble.

In working up our Worcester branch it astonished the Committee to find the number of gardeners ignorant of the existence of the Institution. Personally, I should like to see the leading gardeners of each county, or federation of counties, form themselves into working committees with the intention of forming branches locally, to map out districts for each committeeman to canvas, and bring home to every gardener in the United Kingdom the claims and existence of such an Institution.

None could then plead ignorance, and I am almost autocratic enough to suggest a black register. If this county federation were done thoroughly I predict a result, both direct and indirect, that would justify the appeal now being made by our Treasurer, Mr. Harry J. Veitch, to establish a "Victorian Era Fund," and even exceed his most sanguine expectations.—WILLIAM CRUMP, *Madresfield Court*.

Allow me to congratulate those contributors to "The Young Gardeners' Domain," who, on my advice, are now, or about to be, Royal Benevolent Gardeners. There are few, in the bothy at least, but what to be so must entail some little self-sacrifice; not in itself sufficient to provide an excuse for standing aloof, but amply sufficient for us elders to honour their spirited action. May I, too, be permitted to express the wish that the governing authorities of that body could see their way to encourage young gardeners by admitting them as members at a reduced subscription of, say half a guinea per annum, until they attain the position of "head." Bravo! young gardeners. You have "done well, and not too soon," and afforded much gratification to—AN OLD BOY.

We may add that there is reason to believe that no form of commemorating the Queen's reign would be more in consonance with Her Majesty's feelings than such a Fund as that proposed by the G.R.B.I.; because the Prince of Wales, who has received many inquiries on the subject, has stated that, whilst giving no advice, he suspected the Queen would be best pleased with celebrations "which may tend to brighten the lives and ameliorate the condition of Her Majesty's poorer subjects." This is exactly the object of the Institution and its "Victorian Era Fund," and it is hoped it will be supported by the workers casting in their mites, as well as by the wealthy in the gardening community.

We should like to say also, in connection with commemorative proposals and decisions, how gladdening it is to find that a kindred institution which graces the horticultural world, the Royal Gardeners' Orphan Fund, which was established in honour of Her Majesty's Jubilee in 1887, has been enabled to admit all candidates to the benefits of the Fund during the present eventful year. The claims of this admirable charity must never be overlooked. In view of calls for the assistance of aged gardeners, widows, and orphans, also of the Indian Famine Fund, we begin to think that Mr. Wood's laudable endeavour to provide a Hall of Horticulture must stand over.

CHEMISTRY IN THE GARDEN.

THE rapid strides which scientists have made during the past fifty years in extending our knowledge of natural science is one of the most marked features of the present age. Science permeates every trade, and many are the facts which could be brought forward to show how valuable it is when combined with good practice.

What is science? The late Professor Huxley defined it as "organised common sense," or what, in other words, we should call "true knowledge;" and what can be more profitable to cultivators than true knowledge of the work in which they are engaged? There are two sides to all garden work—namely, the scientific and the practical. To know why we prune our fruit trees or pot and water our plants is the scientific side; to do the pruning, potting, or watering is the practical. Science and practice, therefore, go hand in hand, and cannot be separated.

Gardening, like agriculture, is an art which has been pursued from time immemorial. If practice alone could make an art

perfect, gardening and agriculture ought to stand out pre-eminently above all others. Do they? I think not.

Anyone coming in contact with continental gardeners soon notices how wide is their knowledge of natural science, and will then begin to understand why we, in some departments, are losing ground. To some extent we are not so fortunate as our continental neighbours, for while they have many institutions devoted to extending the scientific as well as the practical knowledge of their gardeners, we have but few. The books written on garden science are not many, and when we read the few there are, we soon find out how much we are depending upon other countries for our scientific information.

Chemistry is one of the natural sciences, and is the one most useful to gardeners and horticulturists; for by its aid we are able to prove—(1) What substances plants take from the atmosphere and soil to increase their growth; (2) of what soils consist; and (3) what ingredients manures contain that make them valuable to apply to the soil for the use of growing plants.

It seems at first difficult to grasp the fact, that so far as we know every substance in the world is made up of one or more simple bodies—called elements—of which about seventy are known to the chemist. Some of the elements are found in Nature in a free or uncombined state (*e.g.*, sulphur, iron, or gold), while others are united or combined to form compounds (*e.g.*, water, ammonia, or salt). I shall have constantly to refer to these two words—namely, *elements* and *compounds*, therefore let us clearly understand the meaning of them.

An element is a substance which cannot by any known means be made to yield anything other than itself; a compound, however, differs from an element, because it can be made to yield those elements which build it up. To make this clearer I might say that an element resembles a letter of the alphabet, while a compound would be similar to a word. If we take the letter "A," for instance, we know we cannot make it yield any other letter, but if we take a word we can make that word yield the letters of which it is formed.

Chemists have been able to tell us of what elements plants consist by carefully analysing them. The following elements have been found in all the plants that have been analysed:—Hydrogen, oxygen, nitrogen, carbon, sulphur, chlorine, phosphorus, potassium, calcium, magnesium, iron, and generally sodium and silicon. Vegetable physiologists took the subject up, and by growing plants in pure water or quartz sand, to which they applied compounds containing the above named elements, they found they were able to grow plants quite as successfully as they could in fertile soil. By leaving out any of the elements in the compounds they applied they were able to see what effect the deficiency had on the plant. These experiments soon proved that plants do not obtain their carbon from the soil, and also that, as a rule, they (plants) could be grown successfully when chlorine, sodium, and silicon were not applied. If any of the other elements named above were omitted the plants either refused to grow, or would only do so to a limited extent.

We will now proceed to the study of the different elements found to be essential for the growth of plants, for it is only by doing so that we can obtain that solid foundation upon which to build our knowledge of garden chemistry.

HYDROGEN (symbol H).—This element is a colourless invisible gas which is found only sparingly in Nature in a free state. Although hydrogen enters into the composition of all plants and the organic compounds found in them, they (plants) never absorb it as a gas, but always in combination with other elements which we shall subsequently consider. It will be sufficient at present to say that plants obtain their chief supply of hydrogen from water.

OXYGEN (symbol O).—This element is a colourless invisible gas found in Nature in considerable quantities, both in a free state and in combination with other elements. Indeed, it is the most abundant of all the elements, forming as it does one-fifth by volume of the gases which constitute the atmosphere, eight-ninths by weight of all the water which exists, and in combination with other elements it forms a large part of the solid mass of the earth.

Oxygen enters into the composition of all plants, and also into the compounds found in them. Plants would die, and seeds would not germinate if they were deprived of this gas. The reason of this is that during growth certain chemical changes are taking place during which oxygen is absorbed and carbon dioxide exhaled; energy is also required, and this is produced by the oxidation of certain compounds within the plants or seeds. This interchange of gases is called the respiration of plants. The principal source from which plants obtain hydrogen and oxygen is water. This being so, we see that plants have an unlimited supply of these two elements.

Water, as before stated, is a compound—i.e., it consists of two elements. The chemist uses a kind of shorthand to express the different elements and compounds. Water is expressed as H_2O . We have seen that H = hydrogen and O = oxygen, and as we have water expressed as H_2O , it signifies to us that this substance (water) is composed of two parts by volume of hydrogen chemically united with one part by volume of oxygen. But I have previously stated that "oxygen constituted eight-ninths by weight of water," there is evidently some difference then between the volume of these two substances and their respective weights.

Hydrogen is the lightest substance known, and is used in chemistry as the unit of weight. If we take equal volumes of hydrogen and oxygen gases and weigh them, we should find that the latter would weigh nearly sixteen times heavier than the former. As water consists of two parts by volume of hydrogen and one part by volume of oxygen, it must necessarily follow that water contains two parts by weight of hydrogen and sixteen parts by weight of oxygen. The weights of the elements always remain constant, so whatever quantity of water is taken the proportion of hydrogen to oxygen will be as two to sixteen or, what is the same thing, one to eight. There are many more interesting facts about water which we shall have to consider, but it will be better to leave them until we have finished with the elements.—W.D.

(To be continued.)

PRECEPT AND PRACTICE.

(Continued from page 24.)

MORE tuning of pipes? Patience, I prithee, young friend. Allow me to explain that our harmony must commence low down on the scale, and I would not thereby have you feel aggrieved at any apparent slight upon your intelligence. Any thoughts, precepts, or practice must now, at the start, catch the ear of the youngest of young brothers of the craft, for "as the twig is bent the tree's inclined." There is, too, a great deal of inclination in the "twigs," which a little observation will reveal. To illustrate this by a case in point. Last summer in a certain garden I was much amused to see a barrow piled high with weeds and rubbish, veritably zigzagging towards me, down one of the walks, the motive power being invisible until the near approach revealed young knickerbockers struggling manfully with the crowning glory of his hard hour's work. This boy, possessed of rare pluck, whose age does not exceed a dozen summers, in his unflagging zeal borne through the burden and heat of the long days, is typical of a sound embryo gardener; and this one is typical in all points of the British boy in his love of fighting, of sour Apples and similar luxuries. So much did the former predominate that a bad shot at another boy's head, which missed its mark to the detriment of some glass, has relegated him, much to his chagrin, to a winter's schooling, but his one desire is to be back in the garden, and he won't be happy till he gets it. With even the toil and drudgery part of garden work his heart, which is figuratively as big as his body, is in it. Lessons he hates with all the fervent hatred of a healthy young animal, and will continue to do so until their importance dawns upon his expanding mind, when, prompted by sound teaching and encouraged by good example, there is good reason for supposing that young knickerbockers now struggling under a load of weeds may eventually be fitted to bear the higher honours of a gardener's vocation.

Ambition, too, does not disdain knickerbockers, for I know that young B. looks on the bothy as a kind of earthly paradise; and as for the glass department, why he peers through the panes with longing eyes when the lads are syringing, for it must be—it is—some kind of angel's work. Now, I am quite sure that some of our clever contributors to "The Young Gardener's Domain" will be a little disgusted at the apparent puerility of this beginning; yet it is not so apparent to me, who could have gone farther back, in order to bring forward earlier aspirations marking the preliminary footsteps of a successful gardener. The boy who cheerfully turns the real drudgery into pleasure is not one to be burdened with many grievances later in life.

Probably a little careful selection at this early stage would result in weeding out some, at least, who eventually prove to be detrimental. There cannot be any severer test of a boy's fitness for gardening than his tractability to perform his allotted task unpurged. A labourer once handed over his little son to my charge, with the proviso that I might pull the boy's ears as often as I liked, and as long as I liked. "Pull 'em well, and he'll work well." Fortunately the boy did exceedingly well without, for I would be no party to such a bargain. I saw quite sufficient of that in one garden, where the ear-pulling was of almost daily occurrence, and the howls of the victims are borne on the breeze

of memory, to conclude that when it is necessary to resort to stimulants of that kind those boys are not born for gardeners, and that their object in life is for some other field, to which the sooner they are relegated the better for all concerned.

One intelligent boy for whom I went to some trouble in order to give him a start in the bothy, for which the parents expressed considerably more anxiety than the boy himself did regarding it, and rightly so, of course, as the introduction to a life of respectability, grievously disappointed me, for one fine day he marched away, discarding the blue apron to don the red jacket. Now if there are any boys filled with military or naval notions, or, indeed, any notions foreign to gardening, they have no right of entry into it, and any moral force of teaching or example, or physical force such as ear-pulling to subdue their chafing spirits, is simply a mistake. It is an intuitive love from which springs that "yearning ambition" my esteemed helper spoke of, that intuitive love of a garden and gardening which is able to satisfy the restless spirit of a boy and reconcile him to labour.

Of half a dozen boys who seek admission into a garden, or for whom admission is sought by their friends, possibly not more than one is worthy of being retained in it, but the one who is should have all the encouragement we can give him by affording him, as far as possible, variety in his work, and by letting him see that neither it nor he are beneath our notice. It is very crushing to these little men to be regarded as mere machines. There is, doubtless, a great responsibility attached to the hatching out of embryo gardeners, and those who feel that it is so will not lightly undertake the task.

Many kindly memories crop up of my treatment as a boy, and some that are not so, it is needless to say. The latter, chiefly of treatment from subordinates, to whose tender mercies the juveniles are too often submitted, shouting "boy" here and "boy" there; sending him for surreptitious cans of beer to refresh their thirsty cravings, and other disagreeable details too numerous to mention. How different was it at one place where our master, in his multifarious duties, always found time for a passing glance at the boy and his work, setting little crooked matters straight; not only showing how certain things were to be done, but explaining why they should or should not be thus done. How nice, too (apologies to Mrs. Scribe), to be addressed by one's name (most boys have one), and with what zest under these conditions the task was performed, and what a splendid thing it was to be a boy in that garden! This was, of course, the pre-bothyite period. To proceed farther under this head would probably lead to the inference that "An Old Boy" was rapidly drifting from first into second childhood. Sufficient has been advanced, I trust, to point a moral generally, particularly that conclusion I have long since arrived at—viz., that a little observation of "that boy" will, respecting his future as a gardener, easily solve the question now, "To be, or not to be."—AN OLD BOY.

(To be continued.)

BEGONIA GLOIRE DE LORRAINE.

PERHAPS on no class of plants has the art of the hybridist been brought to bear with greater force than on the Begonia, the result being that we have now variety sufficient to meet the requirements of the most fastidious. Amongst those kinds which are popular on account of their winter-blooming propensities, the one named at the head of this note may be well placed as one of the best. Being, comparatively speaking, new, this variety has not yet found its way into a large number of private gardens, but as it becomes more widely known and distributed there is no reason to think that it will not be grown and appreciated in most establishments.

Floriferousness is one of the chief qualifications of Gloire de Lorraine (fig. 15), and as it produces its charming rosy pink blossoms profusely right through the dullest time of the year, this adds greater weight to its value. The habit of the plant is pendulous and graceful, and when grown in shallow pans suspended from the roof of a greenhouse it is seen to the best advantage. As a plant for room decoration it may be strongly recommended, as the delicate tint of the flowers is particularly attractive under artificial light. The foliage is elegant without being unduly robust, but it is in the graceful habit and the abundant production of bloom that the usefulness of the variety mainly lies.

To keep up a constant supply of flowers through the winter months is a cause of anxiety to many gardeners; but by growing a quantity of this useful Begonia the anxiety may to some extent be lessened, as it is easily propagated and grown, well adapted for decorative purposes, and requires no more elaborate accommodation than that afforded in the ordinary greenhouse.—GROWER.

RAISING EARLY TOMATO PLANTS.

WHERE convenience exists for raising plants from seed, and insuring their progress in a satisfactory condition, the present is a suitable time to sow. The chief essentials in producing the plants are heat, moisture, and light. The two first are necessary for germination. When that has taken place light becomes also of paramount importance, in order to modify growth accelerated by the heat and moisture. Light is a main factor, too, in producing sturdy plants which will ultimately be fruitful. A judicious amount of air at all stages is beneficial. It must be afforded, how-

compactly, and level to within half an inch of the rim. Smooth the surface with the flat bottom of a small flower pot. Sow the seeds about an inch apart. It is quite unnecessary to sow closer, because, as a rule, every seed will germinate. Sowing thickly causes the seedlings to become weakened. The cotyledons or seed leaves, and the earliest of those following, require abundance of light. If the green surfaces thus developed cannot receive the light directly they strive to present themselves to as much as possible by growing towards it. This accounts for the weakening effect of being crowded. Therefore in raising plants, especially for early crops, avoid the seedlings touching each other from the first.



FIG. 15.—BEGONIA GLOIRE DE LORRAINE.

ever, in the early stages, so as not to prove harmful to the then tender tissues of the plants.

At this early period of the year a constant temperature of 60° to 65° is demanded by Tomatoes for promoting a free and steady growth. The seed will germinate best in a bottom heat slightly higher.

Varieties of some approved early types ought to be selected for early crops. Sutton's Earliest of All, the American variety, Early Ruby, and the useful, prolific Ifield Gem, are good well tried Tomatoes which invariably succeed with me. For sowing the seed prepare some light sandy material, consisting of loam, leaf soil and sand in equal parts. Mix well together, moistening if dry, so that the compost is in a friable condition. Warm the whole material to render it of a suitable temperature to sow the seed in. If, however, the soil is suspected of being but slightly infested with insects, grubs or worms, it will be desirable to heat it more highly in order to destroy them. The process of doing this may dry the soil too much, but by sprinkling over with water and mixing well, its former moist condition will be secured.

Drain a few clean 5-inch pots. Fill with the soil, shaking down

The sturdier they are kept the sooner they can be transplanted to other pots for strengthening.

In according the seedlings a light position a temperature must be provided for insuring sufficient warmth of the soil. This is a matter of importance during the early part of the season to bring the plants along. The sun has not much power to naturally raise the temperature inside glass structures, except for very brief periods, totally inadequate for the progress of the plants. Artificial heat must be relied upon. If a warm, dry shelf, moderately close to the glass, in a suitable temperature, affords the correct conditions, no better place can be found. It is better that the plants, however, should be some distance from the glass, if the position is light, rather than run the risk of their suffering from deficient heat.

After transplanting the seedlings improve considerably. For the first shift from the seed pots, the plants seem to do best when placed round the edges not less than 2 inches apart. Sink them low down in the pots, so that the seed leaves touch the soil when enough is filled in. The compost may be similar to what is used

for sowing. Being moist, as it should be when used, no water will be needed until root action has commenced. Sturdy, short-jointed growth follows, the plants shortly attaining sufficient roots for transferring to single pots. These may be 3 or 4-inch pots. Use less leaf soil in the compost, which should now be pressed more firmly round the roots.

At this stage a light position becomes still more important. The plants must have as much light as possible, with their tops near the glass so far as this can be done without withdrawing the roots from the influence of the necessary heat. In the month of March there is not much difficulty in securing a proper temperature on warm, light shelves in a heated structure. The advice chiefly pertains to an earlier date, when more care and attention is needed to secure the well-being of the plants.—E. D. S.

HORTICULTURAL HISTORY NOTES.

MEMORIES OF OLD CHISWICK.

PROBABLY the name of Chiswick is now to most gardeners principally associated with recollections of the gardens of the Royal Horticultural Society there situate, though, in fact, they are at Turnham Green but in the Chiswick parish. To enter fully upon their history and present state would occupy too much space; it would be also beside my purpose, and prove perhaps somewhat dry reading. Concerning their origin and early history, however, a little may be said, since the place is intimately connected with horticulturists who linked the Georgian and the Victorian period, and formerly were workers or learners there. It was a great change the removal from the small experimental garden on the border of Kensington to the extensive ground which the Society has had under its charge for nearly seventy-four years. A commencement was made in 1822, but two years elapsed before the ground was properly laid out, when of the available space about 17 acres were devoted to fruit and vegetables, and 14 acres to flowers, ornamental trees, or shrubs. From the beginning the fruit department was one of the chief features of the gardens.

Loudon, surveying the place subsequently as a friendly critic, objected to the formation of the arboretum in one large clump; he would have preferred if this had been carried all round the circumference of the gardens, its monotony broken by occasional flower beds. Also, he disapproved of the scattering of the houses and conservatories over the grounds, considering it better to have these as a group or a chain in the central area. Then, in the original plan of the gardens, the communications between the different portions were not made convenient to workers and visitors. Some of Loudon's hints were taken advantage of during after alterations. The illustrious President of the Society (T. A. Knight, Esq.), well remembered by his numerous writings on horticulture and kindred topics, took an active part in the arrangement and administration of the Chiswick garden, being ably supported by Mr. Joseph Sabine, then the Hon. Secretary. Another individual, for many years associated with the fruit department, and who entered upon his duties in 1827, stands high on the record; this was Mr. Thompson, a man possessed of a knowledge of fruits and of a skill in their cultivation which few have equalled. Trial grounds were set apart for Apples, Pears, Plums, Cherries, and one for general fruits; especial attention was also given to varieties of the Strawberry.

At first, a good deal of forcing was carried out here, with Pines, Peaches, Figs, and other things, but subsequently this was considered neither profitable nor instructive, and it became at last a minor item in the annual work. Proving and testing Vines has been carried out regularly from the beginning, not merely to the benefit of gardeners, but to that of the public also. When Mushrooms, again, were little cultivated generally, various useful experiments in growing them were made at Chiswick. Valuable information concerning manures has been published in past years, from the results of trials here, by which both agriculture and horticulture have been gainers; one of the Society's supporters, who took much interest in these, was Professor Solley.

From almost every part of the world seeds and slips arrived at the Society's gardens, these being obtained by an admirable system of exchange, and by correspondence with establishments or individuals. After experimental cultivation new and valuable species were distributed to members, and then gradually spread over our islands. Collectors were employed whose researches have left an abiding memorial in the plants they procured. We may recall the names of Hartweg, who explored Mexico and adjacent countries; of Fortune, who visited China; and of Douglas, who introduced more than 200 species, chiefly hardy. Amongst these are *Ribes sanguineum*, *Berberis aquifolium*, *Mimulus moschatius*, a number of Conifers, and many good annuals, such as *Nemophila insignis*. One thing that attracted the notice of visitors thirty or forty years ago was the display of climbing plants, the growth of which was

managed here so as to closely imitate Nature in a manner which had been previously unknown about gardens. At the commencement of Her Majesty's reign the principal conservatory was built from the designs of Alfred Ainger, Esq., the internal arrangement being then somewhat novel. It has since furnished hints to the erectors of similar houses.

Let us, however, pass on to Chiswick itself, which was notable for its gardens and orchards a good while before the Society added to its renown. Originally, they say, just a fishing village. This seems laughable now, yet there was a time when the fishery of the Upper Thames was important. There is a popular idea that the name of it was once Cheesewick, because a fair for cheese was held on the Mall. Really it is Saxon, and refers to the sandy undersoil upon which the village rests. The gravel and sand render drainage, except for surface water, unnecessary. About this is a good loam, not too stiff for vegetable crops, nor too light for most fruit trees. Primitive Chiswick had no roads, but when these were opened up the eligible nature of the place led to its being selected for market gardens and orchards, many of which have now been transformed. The way in which houses were built about new Chiswick upon Cabbage fields and Asparagus beds, with no proper foundations, and in defiance of all hygienic rules, I myself have witnessed. The air of the neighbourhood cannot but be pure since it is changed four times daily by the tidal rise and fall, yet the position of Chiswick gives it much heat in summer, while the winter and spring frosts are apt to be severe.

Chiswick began to appear prominent amongst London suburbs when Lord Burlington, well known in connection with a Piccadilly mansion, acquired a large extent of land there, built a residence, and laid out gardens. Kent, the pioneer of landscape gardeners, according to some, was employed by his lordship, and the Italian style was followed with some variations. We cannot walk about the grounds now and not be arrested at nearly every step by trees which tell of planting carried out early in the Georgian era. There was once an avenue of six Cedars of Lebanon, but one has perished; the five remaining must be about 80 feet high, and spread out handsomely. Near them, at a more recent date, have been planted some Deodars, which are already of good size. Other Cedars flourish in another part, near what used to be called the Poet's Corner, in proximity to which are fine Evergreen Oaks. Adjacent are masses of Rhododendrons, many of age, and some have extended themselves largely by layering. Numerous are the venerable Hollies and Yews; of the latter tree there is a splendid double hedge which screens Napoleon's Walk. Not far from this are two Portugal Laurels, the unusual proportions of which attract notice, but in fact it is an assemblage of the species through layering, and the Bay ground near has always had a repute for its varieties of that group. There are some handsome Magnolias and deciduous Cypresses; also amongst the older trees we notice specimens of the Hornbeam, Birch, Wych Elm, Plane, Oak, and Lime.

The Lime avenue, indeed, has been a permanent link between the Society's gardens and Chiswick House, since it conducts visitors to both, and throughout the history of the gardens the Dukes of Devonshire have cheerfully allowed the public at specified times to admire the beauties of the private demesne adjacent. It was in the grounds of the Horticultural Society that Paxton formed his acquaintance with his ducal patron, which was thereafter to prove so full of results. It was about the middle of the present century that this Duke planned and carried out an entire re-arrangement of the flower gardens at Chiswick, also erecting a new range of hothouses. He made large addition to that part of the shrubberies that was devoted to the Pine tribe. A reduction was carried out in the number of beds containing mixed herbaceous plants, and the system adopted of filling most of the beds with one species each. The Pansy and its allies were favourites here formerly, and a considerable show of them used to be made in the early months. To the Camellia and Fuchsia special prominence has been given, indoors and out; Pelargoniums also have been much studied at Chiswick.

At Corney, above Chiswick, is a garden belonging to the Devonshire estate, which has some notable specimens of *Pinus pinea*, the seeds of which were brought from Mount Etna by one of the Dukes. There are several remarkable Thorns and large Portugal Laurels, specimens of *Liquidambar styraciflua*, and Tulip Trees which could hardly be matched anywhere. Higher up still, at the Grove, on the lawn there were (and I hope yet remain) some Spanish Chestnuts of unusual height and age; several of these varied in girth from 24 to 27 feet.

The Bagleys, princes amongst suburban market gardeners, had at one time much ground about Chiswick, so, too, had Jessop and Mills. Extensive, again, were once the orchards belonging to Dancer, who raised splendid crops of Apples and Plums. The locality was not suited for most Pears, and Strawberries were never grown so largely about Chiswick as at Fulham.—J. R. S. C.



HYBRIDISATION OF ROSES.

[The N.R.S. Prize Essay, by WALTER EASLEA. R. Clark, Limited: Edinburgh, 1896.]

THE "Rosarian's Year Book for 1897" tells us:—"In 1896 Mr. A. H. Grey offered a prize of £5 for the best essay on the Hybridisation of Roses," and that "the prize was awarded to Mr. Walter Easlea for a very carefully considered brochure. He is the son of one who was associated with the late Mr. Laxton in the various experiments on hybridisation he carried out both at Stamford and Bedford, and he is moreover engaged at Messrs. W. Paul & Son's, at Waltham Cross, so that he has had much theoretical and practical training for the task which he undertook."

It is certainly exceedingly well executed. Our readers cannot do better than invest in it, nor will they regret, even though "bang goes saxpence." It is worth the money and more. A large portion of course belongs specially to the hybridiser, but there is much also that is interesting to the average rosarian. "*Pocula nascitur, non fit*;" and so, we incline to think, is it with the originators of new Roses. We too have aspired, and essayed; but the pollen, and the stamen, and the pistil never seemed to be of one mind at the critical moment. A calm old age has induced encouragement rather of other operators.

Mr. Easlea gives his subject three heads and an application. Under conceivable circumstances two are sufficient; but we would not willingly lose one of these three—1, The Art of Cross-fertilisation. 2, Some Past Results. 3, Improvements Desirable. Then the seed and its treatment. This last we shall skip, as is usual with most morals. The three former contain also much of general interest. As to "the Art," he brings forward some highly respectable names, asserting that "Nature intended flowers to be cross-fertilised for their own good, and that sometimes the vigour is thus increased fiftyfold." Immortal Will has a word to say on this, as well as on almost every other subject.

"This is an Art
Which does mend Nature—change it rather; but
The Art itself is Nature."—(*W. Night's Tale*.)

Says Mr. Easlea, "We need to infuse new blood into our Roses at the present day, as our horse-breeders and farmers are doing with their horses, cattle, and poultry. The late Mr. Bennett once told me that he believed he could induce any variety of Rose to seed." This is, however, by no means a usual experience in our climate.

Mr. Easlea suggests an airy light glass structure, to be erected in the form of a lean-to, facing due south, and then instructs the happy owner exactly how to proceed. As there is not many a Lord Penzance, and very many weaker brethren, it may be well now to hasten on to his second ("Past Results") discussion. This chapter is exceedingly interesting, and with old rosarians will revive many touching reminiscences. Dear Général Jacq! what an extensive progeny indeed he sees around him! And, what is puzzling to express, he seems sometimes to have been mother as well as father. "Seed parent" in the case of Charles Lefebvre and Mons. Boncenne; "pollen parent" to R. M. Henriette, Albert la Blotais, Max Singer, and others.

Jules Margottin is mentioned next. "A wonderfully wide range of colour has characterised the offspring of this variety—Castellane V. Bouyer, Annie Laxton, and many others." Victor Verdier has been also an excellent seed producer; Etienne Levet, Marie Finger, S. M. Rodocanachi, and other high-class Roses all claiming his parentage. In some cases several generations can be traced. That huge La Reine, the ruin of our "boxes" in our "sallet" days, produced Anna de Diesbach, a much mitigated representation of herself; and this, again, Ulrich Brunner, which has been pronounced on high authority our very best all-round Rose, taking colour, character, and foliage into consideration. The good old Glory has a progeny which would require an article to themselves, R. M. Henriette being the result of her marriage with Général Jacqueminot; those excellent Roses Belle Lyonnaise and Madame Bérard are also her offspring.

Amongst Tea Roses Madame Falcot has been a useful seeder, being the parent of Perle des Jardins, Hon. Edith Gifford as a grandchild, and that almost best all-round Tea, M. V. Houette. From Devonensis has come the new and highly esteemed K. A. Victoria. The little-known Madame de Tartas gives the excellent Madame Lambard, and the still more famous Cheshunt Hybrid, this latter being the result of a cross between Tartas and C. de Rohan. Maman Cochet, the best new Tea, descends, we are told, from that Rose treasure Catherine Mermet. To this list must be added Isabella Gray, the parent of the great Maréchal Niel; "very much," says Dean Hole, "as if a dingy old sparrow had hatched out a canary!"

But results must be left for endeavours. The third heading, "Improvements Desirable," makes the mouth water, but the experienced grower also to remark inwardly something or other about "hope deferred." These improvements are suggested with a light heart, their realisation would be hailed with a thankful one. "In the first place our

collection of show Roses is sadly in need of a good vivid poppy scarlet." The possible parents of such are suggested. "Large, well shaped, very dark, almost black, Roses are wanted." "A pure white Marie Baumann would be a welcome addition to our seventy-twos."

"Among Tea Roses and H.T.'s, take, for instance, such splendid varieties as Maman Cochet and K. A. Victoria. We require more Roses of this type, and, if they can be obtained in pure yellow, bronze, and Ma Capucine colour, what a glorious feast is in store for us!" "A white Maréchal Niel is announced, but what a lovely acquisition would be a Maréchal of the colour of W. A. Richardson. Mr. Bennett informed me on one occasion that he had induced Maréchal Niel to seed, therefore there is hope for us."

We had marked further passages, but perhaps are now verging rather too nearly on Utopia.

"Utopia is a pleasant place,
But how shall we get there?
Straight down the crooked lane,
And right round the square."—HOOD.

We conclude with a very happy latter-day suggestion, though most of us have still to make full acquaintance with the couple suggested to be affianced. "Would not a cross between Crimson Rambler and A. S. Grey produce some novelties in the way of climbers?" Do, Mr. Easlea, delight us with the realisation, as well as suggestion, of some of these only too seductive fairy visions.

COLOURED-STEMMED RUBUS.

ALTHOUGH most of the species which form the genus Rubus are decidedly more ornamental during the summer and autumn than in winter, there are several which are most conspicuous during the latter season, the species referred to being those with coloured stems. Some of these are R. biflorus, from the temperate Himalayas; R. leucodermis and R. occidentalis, natives of N.W. America; R. lasiostylis, from China; and R. neglectus and R. racemosus. The colour of these plants is due to a glaucous bloom which covers the stems, in some cases so thickly as to give the plants the appearance of being covered with a coat of white paint:

By far the most conspicuous of those mentioned is R. biflorus. This forms a strong-growing bush, somewhat resembling in habit the common Blackberry. R. neglectus is also very good; the coating of bloom is thinner than in the preceding, and does not altogether hide the reddish-brown bark beneath. The habit of R. occidentalis is similar to that of the two foregoing, and the stems have a rather thick coating of bloom. R. leucodermis is more rambling, and much weaker than either of the former. R. lasiostylis and R. racemosus are stiffer in habit than the former, resembling more the growth of the Raspberry.

Like most other coloured-stemmed plants, the best colouring is obtained from young quickly grown shoots, consequently they should be planted in good soil, so as to insure strong growths each year, some of the old growths being cut away annually.—W. D.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 12TH.

SCIENTIFIC COMMITTEE.—Present: Mr. Michael (in the chair); Mr. Lynch, Rev. W. Wilks, Dr. Russell, Dr. Bonavia, Mr. Douglas, and Rev. G. Henslow (Hon. Sec.).

Tomatoes Diseased.—It was reported from Kew that the specimens exhibited at the last meeting were too much decayed to be able to ascertain what fungus, if any, had caused the disease.

Senecio multiflorus, Hybrids.—Mr. Lynch exhibited a number of specimens which he had raised by crossing S. multiflorus with various forms of the garden or cultivated Cineraria. The colours much resembled those of the latter plant, the foliage being intermediate, and the height about 3 feet. All but one had S. multiflorus as the female parent, the results showing therefore great prepotency on the part of the male (Cineraria). S. multiflorus was first introduced from the Canaries in 1855 ("Bot. Mag.," tab. 4994, *Doronicum Bourgei*). It was subsequently lost from Kew and reintroduced to Cambridge by Mr. Gardener in 1895. Some of the flowers showed a peculiar circular white spot on the red tip of the petals.—(*Gardeners' Chronicle*, Jan. 16, 1897.)

Cineraria cruenta.—Mr. Douglas said that he is raising seedlings of this plant, in order to see if it varies towards the cultivated forms without being crossed. Mr. Lynch observed that C. Tussilaginis was a species which apparently most nearly resembled the cultivated Cineraria.

White Narcissus, Artificially Coloured.—Dr. Russell exhibited some cut flowers of white Polyanthus Narcissus, which he had placed in solutions of acid red magenta (Judson) dye, and in acid green. The colours had traversed the fibro-vascular cords, and then spread over the intermediate tissues, forming a border round the ends of the petals. He proposes investigating the matter to try and discover the general nature of those colours which will act in this way. It took from twelve to fifteen hours to infuse the perianths. Mr. Henslow remarked that John Laurence in his book on gardening (1726), says that people in his day used to colour flowers by letting the roots lie in a solution of the lees of claret.



WEATHER IN LONDON.—Those who accept the presence of snow on the trees, the houses, and the roads as being synonymous with winter would be satisfied on Saturday and Sunday last. On the first-named day there was a fairly heavy fall, the snow remaining over Sunday, on which night a rapid thaw set in. Both nights brought sharp frosts, but Monday evening saw a reduction, and on Tuesday night it was wet and mild. Rain fell slightly at the time of going to press on Wednesday.

WEATHER IN THE NORTH.—The weather for the past week has been pleasantly seasonable, the days and evenings being calm and bright, and frost of varying intensity prevailed throughout; 4° were registered on the morning of the 16th, 11° and 14° on the following days. On Tuesday morning there was a slight appearance of a change, 10° of frost being recorded.—B. D., *S. Perthshire*.

CARDIFF GARDENERS' ASSOCIATION.—The opening of the Session 1897 took place on Tuesday, January 5th, when a lecture was delivered by Mr. W. W. Pettigrew, gardener to the Cardiff Corporation, on "Process of Fertilisation," illustrated by limelight. Other evenings will be devoted to "The Culture of the Carnation," by Mr. Pike, January 12th; "Vine Culture," by Mr. Tucker, January 26th; "The Fuchsia," by Mr. J. Julian, February 9th; "Carnivorous and Insectivorous Plants," by F. G. Treseder, February 23rd. The Hon. Secretary is Mr. W. J. Hockey.

SEED DISTRIBUTION.—The whole subject of the methods by which seeds are distributed is attracting considerable attention just now. It seems almost impossible to construct any general law by which to explain the reason for things in nature. It does seem, for instance, safe to say that wings are given to seeds to enable them to fly far away from the parent tree, and thus extend the area of territory occupied by the species. But in many of the large-seeded Pines—the Linden and others—the hollow seeds only are the ones blown away. The solid, perfect seeds remain around the parent tree. The objectors to everything argue that wings are given to fan out the light, useless material. But, says an American contemporary, this surely cannot always be.

HAMPTON COURT GARDENS.—We learn that Mr. Archibald Graham, who has been some twenty years superintendent of these famous public gardens, and who by virtue of advanced age would soon have been retired, has resigned the post, and will shortly quit Hampton Court. He is to be succeeded by Mr. Gardiner, for some time superintendent of Greenwich Park. This gentleman will find in his new sphere wide scope for the exercise of his talents in flower gardening, for that is here the dominant attraction, so far as the grounds are concerned. There is especially room for the introduction of hardy border flowers to a much greater extent than now is found. The staff left by Mr. Graham is a good one and well up to the work, so that any new superintendent will at the outset find his responsibilities materially lightened. Hampton Court yearly grows in popularity, as indeed it is a beautiful place, and now that the great Home Park is open to the public there is no more attractive place of resort that is fully public in the kingdom. It is stated that locally a testimonial to Mr. Graham is being prepared.

WINCHESTER GARDENERS' ASSOCIATION.—On Tuesday the 12th inst., at a meeting of the above Association, Mr. Curtis, gardener to W. F. G. Spranger, Esq., Springhills, Southampton, read a paper on "Tomato Culture under Glass." The remarks were illustrated with plants from seeds sown thickly, from seeds sown thinly, and rods a year old, from which fruit was cut at the end of December. The paper was both practical and instructive. Questions were invited, and the number asked proved that the subject was one in which many members were interested. Certificates of merit were awarded to Mr. Munt, gardener to Mrs. Warner, Salcot, for three plants of *Primula Prince Arthur*, and three plants of *Solanum capsicastrum*, which were very dwarf and well berried; Mr. Crook, gardener to A. R. Dyer, Esq., Palm Hall, for three *Primulas*, *alba plena*, and a plant of *Cyclamen White Butterfly*; Mr. Adams, gardener to Colonel Dickins, Blackbridge House, for three plants of *Primula sinensis fimbriata*. Several other exhibits were very highly commended.

GARDENING APPOINTMENT.—Mr. Henry Haines, head gardener for the past nine years at Shottesbrooke Park, Maidenhead, has been appointed in the same capacity to W. N. Diggle, Esq., Efford, Lymington.

THE SILVER WEDDING OF MR. AND MRS. T. WHILLANS, Blenheim Palace Gardens.—This was celebrated in a very pleasant manner on January 6th, when the Duke of Marlborough kindly sanctioned the use of the capacious corridors of the south block of greenhouses, which were prettily decorated, for the purpose of entertaining the many friends, including the principal domestics at the palace, who assembled in goodwill and amity to the hosts to honour the event. A most enjoyable evening was spent, and for those who were present will form a very pleasant remembrance. Mr. and Mrs. Whillans were the recipients of numerous tokens of friendship and kindly congratulation, amongst others a handsome silver cake basket, given by the garden employes, which will no doubt be regarded as a most sincere expression of kindly sentiments.

THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—At a meeting held January 12th, Mr. Chas. Lawton in the chair, a paper was read by Mr. Peake, Superintendent of the Public Parks and Gardens of Hull, on "Trees in Towns." The essay was confined mostly to the planting and management of trees in streets, and the varieties best adapted for the low-lying town of Hull, the appearance of which has been considerably improved during the last quarter of a century by the large number of trees which have been planted, and now much admired, and a source of great pleasure to the inhabitants. Great credit is due to Mr. Peake, under whose superintendence the work proceeded, for bringing about such successful results. Votes of thanks to the essayist and Chairman concluded the meeting.—F. L. T.

READING HORTICULTURAL SOCIETY.—The annual general meeting of the Reading and District Gardeners' Mutual Improvement Association was held in the Club Room on Monday, January 11th. Mr. T. Neve, the Chairman of the Association, presided over a large gathering of members. After the report and balance-sheet, which were of a very satisfactory character, had been read and adopted, the following members were elected to fill the various offices during the ensuing year. President, Mr. C. B. Stevens; Chairman, Mr. T. Neve; Vice-Chairman, Mr. E. Dearlove; Librarian, Mr. James Martin; Assistant Librarian, Mr. E. Dore; Treasurer, Mr. W. Phipps; Secretary, Mr. J. Pound, jun.; Committee, Messrs. F. Bright, C. Burton, R. Butcher, R. Chamberlain, H. G. Cox, B. Dockerill, H. Farey, W. Goddard, R. Hearn, G. Hinton, J. Pound, G. Smith, W. Smith, T. Turton, H. Wilson, and J. Woolford. A very hearty vote of thanks was passed to the retiring President, Mr. Arthur W. Sutton, for the great interest he had shown in the Association during his term of office. A beautiful collection of *Primula obconica* was shown by Mr. Townsend, gardener to Sir William Farrer, Sandhurst Lodge, and was greatly admired.

HORTICULTURAL CLUB.—The monthly dinner and conversation took place at the Hotel Windsor on Tuesday, 12th inst. The chair was taken by Mr. Harry J. Veitch (Vice-Chairman of the Club). The subject for discussion was "The Proposals for Horticultural Memorials of the Queen's Reign," which was opened by the Secretary, Rev. H. H. D'Ombraim, who passed in review the various proposals which had been advanced in the gardening papers, and expressed his opinion that not one of them was practicable, and that as far as a horticultural institute, of whatever character it might be, was concerned, there was no situation in London that could be considered eligible. What was required was not so much a hall where large shows could be held as a home where such fortnightly meetings as those of R.H.S. could be held, together with some suitable offices for Committee meetings and horticultural gatherings, which must be held in a central position alike suitable for the provinces and the suburban exhibitors. A discussion took place, and the general opinion was that with the air full of schemes for the popular celebration of the sixtieth year of the Queen's beneficent reign, the year 1897 was not a good time to launch a scheme for the national benefit of horticulture, more especially after Her Majesty has herself indicated that what would be most acceptable to her would be the strengthening of the nursing institutions, hospitals, and other works of mercy for the relief of the suffering and poverty stricken masses of the people, and horticulturists would have a good opportunity presented to them of following this particular line in strengthening the new "Victorian Era Fund" about to be raised by the Gardeners' Royal Benevolent Institution, particulars of which will shortly be announced.

— **DEATH OF MRS. JONES.**—Numbers of friends of Mr. T. Jones, who was for many years Her Majesty's chief gardener at Frogmore, will mourn with him on the death of his much-loved wife. Mrs. Jones, we are informed, died at Pattingham, near Wolverhampton, after a long and painful illness. She will be well remembered by many old friends of Mr. Jones for her quiet, happy way in making them at home during occasional visits, and by the unostentatious yet genuine manner in which she dispensed hospitality. Mrs. Jones was in all respects a most excellent gardener's wife, and we are not surprised to learn that Mr. Jones feels his bereavement most keenly.

— **JADOO FIBRE.**—The introduction of Jadoo fibre by Col. Halford Thompson a few years ago was not regarded by many persons with much favour. Events have proved the merit of the material, and the company that was promoted some time back now finds itself hampered by lack of funds, the business having increased to such a surprising extent. Such being the case, it has now been decided to increase the capital to £50,000 sterling, which will allow the Directors the needed scope for extension. Col. Thompson is the Chairman of the Board, of which P. C. M. Veitch, Esq., is a member. For other particulars, see our advertisement columns.

— **POTATOES FOR EXHIBITION.**—This is what I read in one of our great weekly newspapers the other day, under the name of a reputed leading horticulturist. I could but fancy that our old friend has been playing Rip Van Winkle:—"Best six varieties for exhibition—Snowflake, Schoolmaster, Garibaldi, Red Emperor, International, Kidney, and Ashtop Fluke. Best two white rounds—Porter's Excelsior and Schoolmaster. Best two coloured rounds—Red Emperor and Beauty of Kent, or Grampian." Just so, twenty years ago; but now of all the varieties mentioned hardly more than two are found in commerce. Not one of the fine Potatoes of to-day gets mention. Clearly it is a case of twenty years' somnolence.—**SOLANUM.**

— **SINGLE DAHLIAS.**—It is curious to watch the changes of fashion in regard to popularity in flowers. A few years ago there was a great rush for single Dahlias, and they were really beautiful; of late years, however, they are rarely seen. The misfortune with the old Dahlias frequently is they bloom rather late in our climate, and are no sooner in full force than the frost is ready to dispute possession with us. In the Old World the Dahlia is yet popular. In France they have succeeded in getting varieties of Dahlias with new double disc flowers. Usually, where the Dahlia is improved, the disc florets become strap-shaped.—(*"Meehan's Monthly."*)

— **BERLIN GRAND EXHIBITION.**—The oldest horticultural Society in Germany—the Verein zur Beförderung des Gartenbaues in den preussischen Staaten—will celebrate its seventy-fifth anniversary by a grand general exhibition, in which foreigners can partake. The programme and its first supplement include many high prizes, in total 50,000 marks (£2500), and many prizes of honour, amongst which is a very high prize of the Emperor. It would be of the greatest interest, also from the commercial point of view, if English growers would exhibit there, especially Orchids, but also Chinese Primulas and Cyclamen, to see if the English are better than the German. The term for inscriptions expires at the 1st March. Address to the Secretary General, Berlin N., Invalidenstrasse 42.

— **PRUNUS NANA.**—Some plants of this pretty little Prunus are at present in flower in the conservatory at Kew. Although very attractive, whether grown outside (when it flowers in early spring) or forced for greenhouse decoration in winter, this delightful plant is very rarely met with, doubtless on account of its not being better known. It belongs to the dwarf section of the genus, and at Kew when mature forms twiggy bushes 3½ feet in height by the same in diameter. The flowers resemble in colour and shape those of the common Almond, but are only about half the size. They are, however, very freely produced on all parts of the previous year's growth. To succeed well with this plant it is advisable to propagate a few each year, as young plants make better growths and flower more profusely than older ones. It is a native of South Russia, and used to be known as *Amygdalus nana*.—W.

— **LIVERPOOL HORTICULTURAL ASSOCIATION.**—On Saturday evening the annual dinner to members and friends was held, the attendance being quite up to the average. The tables presented a charming appearance with their pleasing decorations, which had been done by members of the Committee. Dinner over, the chair was occupied by W. F. Rogers, Esq., the Hon. Treasurer, who was supported by Messrs. R. W. Ker, J. Kellitt, C.C., J. White (Chairman of the Association), T. Foster (Vice-Chairman), and Mr. W. Dickson (Secretary). The usual loyal toasts were proposed, and heartily responded to by those

present with musical honours. Messrs. R. P. Ker & Sons gave handsomely by providing punch and cigars for all present; and Messrs. T. Davies & Co. presented each person with a box of cigarettes. Votes of thanks to the Chairman, and a splendid musical programme was much enjoyed.—R. P. R.

HINTS ON FORCING.

THE next few weeks are anxious times for those who have to keep up a constant supply of cut flowers and flowering plants. Balls and parties are continually taking place, and these make a largely increased demand for flowers. The bulk of Chrysanthemums are over, so we have to depend almost entirely upon forced flowers for our supply. Camellias may, of course, be had in quantity where they have been gradually induced to flower early by giving them extra heat during the growing season. These, however, are not so favourably regarded for decorative work as formerly, being somewhat too stiff to be used in quantity. Among plants that can be flowered in cool houses in January, Epacris must take high rank, as they supply flowers in beautiful shades of colour, and of the right style to give the necessary touch of lightness to both plant and cut flower arrangements. These are qualities found wanting in many January flowers, and therefore constitute a strong plea for the more extended culture of the Epacris.

Seeing, then, how much we depend upon forced flowers, it is important to avoid, as far as possible, errors in their management, as a mistake usually means a blank in our chain of supply. I propose, therefore, to offer a few remarks about forcing, which I trust will be of service to some. Tulips are, I think, amongst the most easily managed and useful winter and spring flowers we have. They last a long time when cut, and if used with the bulbs attached, and surrounded with damp moss, they are suitable for arranging in an infinite variety of ways, and last quite as long as if left undisturbed in the pots or boxes in which they are grown. For early work I consider there is nothing better than the scarlet *Duc Van Thol*. It can be obtained very cheaply, and the colour is a bright and attractive one, so much needed to brighten up the dreariness of the dull season. Each year I become the more convinced of the importance of potting the bulbs early, so as to secure plenty of active roots before the bulbs are placed in heat. If this is done they will bear very hard forcing with impunity, and throw the flowers well above the foliage.

When Tulips are prepared in this way I am inclined to believe that frequently they do not receive such copious supplies of water as they need after they have been placed in heat about a week. I make a practice of turning a few out of the pots to examine the roots, and I invariably find these are closely packed round the sides of the pot. When such is the case the whole batch is watered several times so as to thoroughly moisten every particle of soil and root. In many instances I have noticed that this copious watering has a wonderful effect upon the progress of the plants, as they seem to grow very quickly; and if kept near the glass the flowers show a substance of petal which forced Tulips often lack. Let the conditions under which this copious watering is advocated be clearly grasped, or the results will be disappointing. These are—that the bulbs must first have plenty of roots, and be grown in a strong heat. *Chrysolora* is a capital yellow variety for early forcing, and *L'Immacula* and *La Candeur* are good whites. I find it is an excellent plan to syringe Tulips freely till the flowers begin to show colour, as it keeps green fly in check, and the young leaves appear to revel in the treatment.

Roman Hyacinths are always of great service, and it is a good plan to make their season as long as possible. The latest bulbs I leave plunged in ashes in the open air till the flowers begin to open. The bulbs do not make roots quite so freely as Tulips, and if they are overwatered the young roots quickly decay, and some of the flower bells turn yellow. When, however, the soil in which they are growing becomes fairly dry copious supplies of water should be given. When the flowers are expanding I find a rather dry position suits them.

Retarded Lily of the Valley crowns are of immense service up till the middle or end of the present month; from that time onward ordinary crowns start freely enough. These should be given a bottom heat of from 80° to 85°, be covered with moss or cocoa-nut fibre refuse, and kept constantly moist. When a bed with bottom heat is not at command good results may be obtained by plunging the pots in boxes placed over the hot-water pipes, and from the middle of February they succeed admirably if placed on shelves or beds without bottom heat.

The value of Daffodils for growing in pots is now largely recognised, and they ought to be grown in quantity by all. Many of them do not force well early in the season, but from the present time they may be brought on gradually in a little heat. The old double yellow variety, the Tenby Daffodil, and Butter and Eggs, are suitable for early forcing. The second named I this season had in flower by the second week in December, every bulb flowering. Close observation has convinced me that it is not sharp forcing alone that sends many of the flowers blind, as it is often brought about by a sudden lowering of the temperature around them when the atmosphere is laden with moisture. By removing pots from a damp to a somewhat dry position I have frequently noticed a marked improvement take place quickly. Sir Watkin, rightly called the King of Daffodils, is so good that it is a pity to risk chance of failure by forcing early, but if taken into an intermediate house about the middle of January it succeeds admirably. The main batch should, however, be allowed to advance in an ordinary greenhouse temperature.—PLANTSMAN.

(To be continued.)



LÆLIO-CATTLEYA ROSALIND.

AT almost every meeting held in the Drill Hall one may see new bigeneric Orchids, chiefly Lælio-Cattleyas, and the majority of those shown possess distinctive features and great merit. Of the several staged during the year 1896 those from Messrs. J. Veitch and Sons, Ltd., Chelsea, have been in the front rank, and that depicted in the engraving (fig. 16) is one of their latest introductions. It was shown at the meeting of the Royal Horticultural Society on December 15th last, and received from the Orchid Committee a first-class certificate. The petals, which are white, are somewhat narrow, but the sepals are broad and fimbriated, with a margin of white round the delicate rose of the central portions. The lip is purplish-crimson, with abundant shadings of blue and a golden-veined throat. The parents were Lælia Domini and Cattleya Trianae.

THE ORCHID HOUSE IN JANUARY.

ONCE again the old year has given place to the new, and as each succeeding week will now see the daylight lengthening, increased activity will soon be noted among our Orchids. One of the first signs of awakening vigour is the appearance of the flower buds at the nodes all along the stems of the deciduous Dendrobies. In small collections it is not usual to see these in flower very early, consequently such as *D. Wardianum*, *D. Devonianum*, *D. crassinode*, *D. primulinum*, and *D. Pierardi*, not to mention more, are just now at this stage. A little more warmth will now be beneficial to these, but let it be applied gradually. Plants rushed on too rapidly never carry so many blossoms or bring them to such perfection as others brought along more steadily and naturally. The fabric of the flowers is thin, evanescent in character, and wanting in the brilliant colour characteristic of this fine genus.

Many of the nodes, too, will push growth bud instead of flowers, the good old *D. nobile* and *D. crassinode* being old offenders in this way. Well ripened plants that finished their growth early should be the first to be placed in heat, later ones being allowed a little more time. The roots should have one good soaking in a pail or tub, and no more water given until they are again quite dry, when the amount must be gradually increased as the blooms develop. They should be kept quiet if possible for a little while after flowering, unless the season is much advanced, as the quicker the growth is made the better. The longest bulbed kinds, as *D. Devonianum* and *D. Pierardi*, seldom start too early, as they require a long season of growth.

The upright growing distichous-leaved set, comprising *Aërides*, *Saccolabiums*, and the like, are usually active at the roots before any signs of new growth appear, and in this they differ from the majority of Orchids. It is easy to see which plants require most water by observation of the roots, but it is better with all in this section to be a little on the dry side with root moisture now. *Saccolabium giganteum* is carrying its beautiful spikes of bloom, and naturally takes more than such as *Vanda coerulea* and others that are at their quietest time. *Phalaenopses* and the smaller growing *Angraecums* must be kept just moist, while the larger members of the latter genus take a good supply of water, their roots being almost as active now as in the growing season.

Cattleya Percivaliana is a beautiful kind now coming on rapidly, some of the earlier flowers being fully expanded, while the swelling sheaths of *C. Trianae*, *C. chocoënsis* and others tell of a rich floral treat in store. With these, as with the Dendrobies, steady progress is best, while the summer blooming *C. Mossiae*, *C. aurea*, *C. Dowiana*, and even *C. Mendeli*, are best kept as quiet as possible, not by drying the roots, but by grouping them at the coolest and driest part of the house. *C. Eldorado* is an erratic species, and looking through the houses to-day I find that many plants of this species are emitting roots freely. If these had been out of condition at the roots I should have repotted them, but they are mostly growing on Tree Fern stems, and quite healthy, so they will not be disturbed.

Repotting, in fact, is almost at a standstill; but very soon there will be plenty to do among the Mexican *Lælias*, autumn and winter flowering *Cypripediums*, *Calanthes*, *Pleiones*, and *Thunias*. It is high time, then, to look over the stock of composts, and get these prepared beforehand. Peat may be knocked up and sifted, the sphagnum moss picked over, and a good stock of clean pots, crocks, and charcoal got ready. Making labels and stakes too will

be useful work during wet or frosty weather, and where the Orchid baskets are made at home these should be prepared in various sizes. These little things make a great difference to the press of work later on, when repotting is in full swing.

The flowering house should be kept fairly warm and rather dry, for it is important that many kinds of Orchids do not get chilled at this season. If there is a scarcity of blossom a few plants of *Poinsettia* may be placed among the Orchids, if these are at command, the bright and telling colour of their bracts helping the somewhat neutral tints of many Orchids. *Iris fimbriata* is another plant that looks well among them, the delicately marked blossoms resembling Orchids considerably. Remove all dead flowers frequently, and change the position of the plants as often as possible, this giving the idea of greater variety. In choosing foliage plants for grouping with Orchids give the preference to fresh Ferns rather than to brightly coloured plants, as *Crotons*, *Coleus*, and the like.

The flower spikes are pushing up in all directions in the cool house, *Odontoglossum crispum*, *O. luteo-purpureum*, *O. Pescatorei*, and all the allied species, hybrids and varieties, showing grandly this season. All these plants must be kept pleasantly moist at the roots, and while not recommending a great advance in temperature the plants are all the better now for comfortable quarters. A little warmth in the pipes allows of free ventilation and frequent damping, and the genial atmosphere thus generated is conducive to the full development of the flower spikes. Where slugs or woodlice are troublesome these must be diligently trapped by the usual methods, and a watch kept on the plants by night, or there is great danger of a whole season's work being ruined by these troublesome pests.—H. R. R.

IN A GLOUCESTERSHIRE APPLE ORCHARD.

CONSEQUENT upon the receipt of an invitation from Charles Bathurst, Esq., J.P., of Lydney Park, conveyed through his agent, Mr. James Lander, to visit Lydney, and there give, in the extensive grass orchard adjoining the park, demonstrations to both tenants and labourers, in standard tree pruning and incidental subjects, I went down to that place on Tuesday the 12th inst. I was met at the station and conveyed to Mr. Lander's residence, where I not only abode, but was favoured with hospitality of the most pleasing kind, such as shows that in that part of the kingdom the stranger within the gates is soon made to realise that he is no longer such, but is an esteemed friend. Nothing could be warmer, heartier, or kindlier than was my reception from everyone.

Early on the morning of the 13th inst. I was taken into the orchard. I found there had been made adequate provision of ladders, steps, saws, knives, and chisels, also several of the estate labourers were at my disposal. We immediately commenced work. I would first say, however, that this one orchard—for there are several others close by—comprises about 8 acres. It has in it Apple trees almost exclusively, only a Pear tree or two being found.

The trees seem to have been of four diverse plantings. There are many veterans, apparently not less than from sixty to eighty years old, having huge stems and large heads of thick, stubby, mossy, cankered wood, such as could not possibly be converted into profitable trees. These I advised be all removed as soon as may be convenient. Then there are many large trees evidently planted about thirty years, all fairly clean in stem and wood, but having heads of close dense growth. Next came many trees, some ten to twelve years planted, all in fairly good condition, and lastly were numerous young standard trees, planted about a year since, and all protected by wooden cradles.

Sending the labourers into the strong young trees, first to clear off the breast wood and remove a few branches, we were enabled to gradually lead up to the tackling of the largest of the second form of tree, and these needed considerable thinning, for the heads were exceedingly dense. A couple of men were sent into the heads jointly, so that I had three or even four trees to direct the pruning of at once. This, however, was easily done with the aid of a long rod. Still further it was evident that the men, although not much accustomed to this form of tree-pruning, especially when taking so drastic a form, soon grasped the matter, and proceeded to perform the work with much intelligence. After two days' tuition I regarded them under Mr. Lander's active oversight, as being capable of thinning the entire orchard satisfactorily.

Beyond removing some branches, which crowded the heads of the old trees, we left these severely alone. They can hardly be too soon thrown and burnt, thus becoming, in the form of potash for manuring, more useful in death than they now are in life. The quantity of branch cut out of several trees seemed to be, as it lay upon the grass, inordinate. The work was not without critics, for Mr. Bathurst had issued such numerous cordial invitations to tenants, farmers, gardeners, and others, to look in during each afternoon, and very many attended. Some of the farmers I overheard rather thought I was having the thinning too severely done. The gardeners, however, to a man, and there were numerous intelligent men amongst them, coincided with my view. I

stated that trees thoroughly thinned looked thin only relatively, because they had previously been so inordinately dense. If the heads now looked thin, they would look thick enough in leaf; also, that relieving the heads of so many branches enabled the roots to support crops of fruit of far superior size and quality, and that the gain eventually would be great.

I gave an exhibition of grease-banding of tree stems to check the winter moth in its effort to climb the trees in the late autumn. The band was made of treble folded brown paper, 9 inches broad, tied round the stem tightly with string about 12 inches from the grass, then daubing it neatly with cart grease. I explained the nature and habits of the winter moth, the time of year it deposits its eggs, its sexuality, and habits, and showed how the grease properly laid on proved to be a

having little or no fibre, and seemed in the lifting to have been carelessly cut with a spade. It was a pity that trees so ruthlessly served should ever be sent out. No wonder, in spite of fair treatment, the trees began to canker, and seemed to be literally stunted and starved.

The bulk of the varieties grown in the orchard and locally are local ones, and many are small and of indifferent quality, even for cider making, apparently the chief use to which Apples are put in the West of England. It need hardly be said that growing for such purposes gets little sympathy from me or from horticulturists generally, who think the Apple has far higher and nobler purposes to serve, as good wholesome food to satisfy the needs of a vast fruit-loving people than to be converted into an intoxicating beverage.

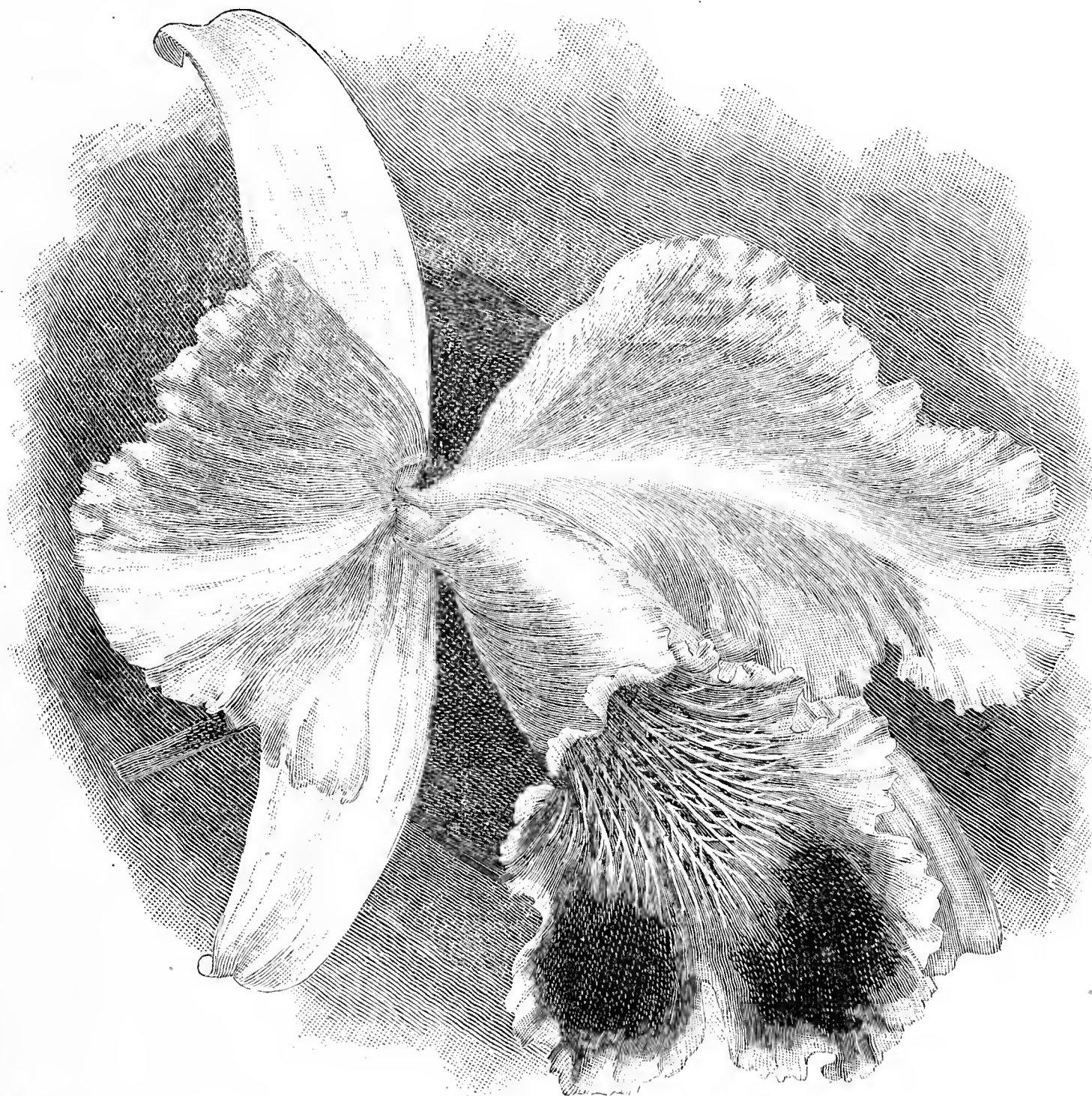


FIG. 16.—LÆLIO-CATTLEYA ROSALIND.

barrier, over which the female insects could not pass, but were caught, and died. This information, which was listened to with deep interest, seemed to be new to many present, and the demonstration was very successful.

Then we had a tree-planting demonstration. A neighbouring farmer, who works his own standards, sent in a few capitally rooted trees about three years grafted, and having plenty of fibre. Holes were opened in the soil, which is of a reddish stone brash, yet apparently excellent for Apples, the bottoms well broken up, some of the soil returned as to bring the bottom up to within 6 or 7 inches of the surface, and the trees were planted. I first went over the roots, cutting out all striking downwards, all jagged or badly placed ones, and paring off the severed ends, then in planting setting them out evenly and thinly. I had some fine clean fresh soil brought to lay about the roots, and afterwards the natural soil was filled in. A few of those young trees planted in the winter of 1895-96 that were evidently doing poorly, were on my advice lifted. These were named, were of good known varieties, and came from a nursery of repute. Yet it was evident the roots had been in lifting shamefully mangled, for they were mere stumps of a few inches long,

It is not possible to deal fully with all that was said and done in this orchard during the two days' demonstration. It was, however, most evident that in inviting tenants and neighbours to look in that Mr. Bathurst wished or hoped, especially seeing how deplorably bad is the general condition of the Apple orchards, that, stimulated by his example at home, they would follow it; and, indeed, there is need they should. If they have no higher claims than now exist it is but too evident that the grand county of Gloucester will never put into the market a single Apple calculated to counteract that tremendous competition the home grower is now experiencing at the hands of the American and Canadian Apple growers.

The situation of the Lydney orchards being a short distance from the Severn, is naturally a humid one. No wonder, therefore, moss and lichens abound on the older trees. I told my auditors that a thorough dasting on a quiet night or morning, when the trees were moist, with fresh-slacked lime, literally smothering the trees, was a most efficacious remedy. I had arranged to give a lecture on "Apple Culture in Orchards," in accordance with the best methods, at the National Schools, on the evening of the 13th inst. In response to the invitation Mr.

Bathurst issued through his agent, Mr. Lander, about fifty persons, all evidently deeply interested in the subject, attended. Mr. Bathurst kindly presided, and after explaining the objects in view, introduced me. My address was a long one, extending over ninety minutes, spoken from notes, but so closely was attention held that none present moved an inch the whole time, except one who had to catch a train, and when I had concluded everyone seemed to have been greatly impressed, and a hearty vote of thanks was accorded.

The lecture covered wide ground, for after referring to the demonstration of the day, I pointed out that the modern idea of Apple culture was in relation to securing a raw fruit supply for the nation, and to that end my remarks would be addressed. I deprecated strongly the practice of planting young trees in the soil of old exhausted Apple orchards as bad practice, but mentioned that Plums would thrive well after Apples, and recommended, to secure a good succession over a long season, to plant Rivers' Early Prolific, Czar, Victoria, Emperor, Monarch, and Archduke, with of Damsons Farleigh Prolific and Bradley's King.

I advised that young Apple trees, whether standard or dwarf, should always be planted in fresh soil in sunny situations, and where practicable on slight ascents rather than in valleys, thus giving the trees more light, air, and warmth, also that the soil be deeply worked by trenching or subsoiling, and if well manured first for a root or Potato crop, then in the late autumn it should be in the best possible condition for planting, and then no raw manure whatever should be used. In relation to the planting of suitable trees I advised the formation of estate nurseries, under competent management, a remark which met with the approval of the Chairman, but who nevertheless naturally wished to see reciprocity in the form of proper after treatment on the part of the tenants. Distances for planting medium and strong growers were given, also instructions as to the planting, staking, and other routine work. I advised, where practicable, if trees be purchased from nurseries, getting maidens as cheaper and less risky. The first and second year's prunings, and later treatment were described, also in case of under cropping on arable soil, the best other bush fruit to plant, culture in general, cleaning, thinning, top-dressing, and feeding with manures, and sewage, especially when the trees are carrying large crops, were all referred to.

The subject of root-pruning and the object in view was mentioned, the special purpose being to convert mere wood-producing buds into fruit buds by checking the too strong flow of sap. The mineral constituents of Apples were described, and it was pointed out that to replace these in the soil the applied manures should consist of about nitrogen 4, potash 6, and phosphate 3, given if artificials at the rate of about 5 to 6 cwt. per acre, or else in small quantities of several ounces to each tree. The various insect pests to which trees are subject were described, and how to check them, especially in relation to the spraying of trees with arsenical mixtures. I advised that Parish or District Councils or landowners might render good service by providing at moderate cost for the use of the locality the needful sprayers, tubs to prepare the mixture, and the materials also, as it was so improbable that any one grower would do anything, especially when his orchard joined on to others that were left unsprayed, and probably smothered with caterpillars. The renovating of sound old trees of worthless sorts by spring grafting was described.

Then the gathering, storing, grading, and marketing the fruit came under notice, especially in relation to checking foreign competition. I urged in the strongest way I could the forsaking of our old bad methods, copying the very best of the foreigners, and in that way getting our fruit into every grocer's store, as the imported fruit does. Naturally, the full exposition of these points took some time. Finally I gave short lists of suitable Apples for general, if not always best for local culture. For eating—Irish Peach, Worcester Pearmain, King of the Pippins, Cox's Orange Pippin, Adams' Pearmain, and Cockle Pippin; of medium growers for standards, as cookers, Manx Codlin, Stirling Castle, Cox's Pomona, Potts' Seedling, Bismarck, and Lane's Prince Albert; then of strong growers for wide distances, Lord Grosvenor, Warner's King, Blenheim Pippin, Waltham Abbey Seedling, Newton Wonder, and Bramley's Seedling. All may not accept these lists, but generally they are of the best.—ALEX. DEAN, F.R.H.S.

[Relative to the experience above described, Mr. Lander writes to us as follows:—"Mr. Bathurst, and all who saw and heard Mr. Dean, have only one opinion, and this is that he is thoroughly master of the subject he dealt with. His lecture was the best I have ever heard, and there are scores of people now regretting they were not present."]

WINTER PRUNING.

(Continued from page 14.)

GRAPE VINES.—On many buildings there are Vines that never produce any fruit. In other cases exactly similar the Vines bear abundant crops. The growths in the first case are let grow anyhow, and are cut back in winter to a couple of eyes, and the result is a splendid crop of leaves. In the other instance the spurs are kept so far apart that each growth has space for the display of its leaves, and pinching is practised at the first joint showing a tendril or bunch, usually the sixth from the base, and the laterals are afterwards kept from overcrowding the main leaves. Such, pruned to two buds as soon as the leaves are down, give

the desired bunches, surplus growths being rubbed off. Nothing is so tractable as the Vine. It wants a south aspect, and a generous soil containing plenty of grit and free drainage. When the rods get old, and the spurs long and weak, training in a young cane and cutting an old rod out makes all right again, only get spurs at the right distance apart (12 to 18 inches).

PEACHES AND NECTARINES.—Though often advised for house walls they are miserable failures, for cottagers and farmers will treat them like Apricot trees, and get sorrowfully small fruit and mere wrecks of trees in a short time after the space is covered. Still, some get along fairly well with such treatment, the trees being given a good thinning in autumn as soon as the fruit is gathered, thus reserving the younger wood, and always having some new ones every year. Under this Morello Cherry-like treatment the trees bear on both spurs and last year's shoots. It has the advantage of being very simple, and it must be said gives fruit when the annual shoot system fails, for the spurs always have the wood riper than the stronger sappy shoots.

The orthodox exclusive, last year's wood-bearing system is almost too much for cottagers and farmers, and it must be said for many professionals, as evidenced in the miserable examples frequently met with on walls. Of course, it is the climate, but it is more the change of methods rather than divergence in weather, for Peaches and Nectarines are quite as well done in some places now as ever they were. The pruning is generally the last done, but why the old wood should not be cut out after the fruit is gathered, as is done under glass, is not so clear. If a good thing for one it ought to be for the other. With fan training the system is easy enough, the thing being to have each year enough sturdy well ripened shoots for supplanting the preceding ones. If a limb goes off, or it is desired to cut out a worn-out branch and supplant it by vigorous bearing wood, the matter is easy, and though the trees so treated may not be equal in appearance to those on the Seymour method they are very serviceable.

On account of the facility in distinguishing the buds, pruning is deferred until they commence swelling in the spring. The weather is also then more favourable to the operator, and if any damage has been done by frost it is clearly seen. But from the advanced state of the buds very little can be done in the way of dressing the trees to prevent the incursion of insects in the coming season. Indeed, little of that sort of thing is now done, whereas formerly it was as common to dress fruit trees in winter as to prune them. Even when the trees were loosened from the wall something was done to keep pests from again appearing to devastate the growths and crops. Walls were dressed as well as the trees, and no doubt did some good. I advise this very desirable practice, for, whatever may be said to the contrary, there are pests that hibernate, red spider being one, and to kill one of these red globules (they coil up so as to resemble an egg) is many hindered existing. Any of the advertised insecticides will do for them, as when trees are dormant the solutions can be applied at a much greater strength than would be safe when the trees are in growth. Aphis eggs are usually deposited on the shoots by the buds, and may be killed by the caustic soda and pearlash wash, but it must be one-fourth weaker than employed on Apple trees, and only employed when the trees are quite dormant. If sprayed on, the wall gets a share, and every pest being wetted there is an end of them. The fungoid pests are hardly gettable, for both blister fungus (*Exoascus deformans*), and fruit rot fungus (*Monilia fructigenum*) have perennial mycelia, and as dormant in the wood as the trees, while mildew is boxed up snugly in the perithecia.

PEARS.—Perhaps the most satisfactory of wall fruits, enormous examples being produced. What has been stated under Apples applies to Pears. It is simply a question of keeping the spurs thin, and having little or no spray, for there is never a satisfactory crop of shoots and fruit at the same time. Extension reached its limit, then comes the struggle; either the spurs must have light without an overgrowth of sappy shoots, or these must be prevented by root-pruning. Sometimes it is better to start boldly afresh, cutting away some or all of the branches and training in others, instead of going on from year to year with barren trees. Even, in certain cases, heading every limb, and regrafting gives excellent results in the case of trees on Pear stocks. Indifferent or bad doing varieties may thus be supplanted by the most approved. Fan-trained trees are readily treated in that way, but horizontal trained ones are less amenable. The thing is to do something, and not go on from year to year with nothing but a crop of shoots. Insects same as Apples.

PLUMS.—Everybody goes in for Plums. There is always a more or less glut of them, and they never bring the price of Apricots. Of course, they will grow on east or west walls, but Apricots want the best southern aspect. That makes things better, as the east can be kept for the Plums, and west for the Pears. Plums are best fan-trained, as the growths can be adjusted to fit in anywhere, and when they become too crowded in the limbs by the spurs these can be thinned. Overgrown or old trees also can be rejuvenated by cutting out old limbs and training in young shoots, which in the year following will form spurs, and in the next bear enormously. If left alone there will be the usual paucity of fruit and a great quantity of useless shoots. Spurring side shoots to an inch of their base, and keeping the spurs fairly thin and close to the wall, is about all Plums require, with shortening leaders to get growths at the right places.

In the matter of insects, what answers for Peaches suits Plums in the way of precautionary measures; but the wood is harder, and will bear more in the way of strength. Aphis and red spider are the worst enemies of Plum trees, the eggs being deposited on the shoots. This as regards aphis, but red spider hibernates—both species of *Tetranychus* and *Bryobia*.—G. ABBEY.

A GARDEN IN THE ISLE OF WIGHT.

[An Address (amplified) by Rev. H. EWBANK to the members of the Horticultural Association at Newport.]

GARDENS differ very much; indeed, there are not two quite alike. You may tell something of the character of a man from seeing his garden, and the way in which its operations are carried on. Now what I object to very strongly is sameness—red Geraniums and yellow Calceolarias weary you—they are no better than a Turkey carpet or a mosaic floor; it is a question of colour with them, and nothing else. Gardening is very different now from what it was twenty or five and twenty years ago, and I think a passage which was written about twenty years ago will explain to you what I mean.

"For some years past," Dr. Wallace says, "the severe style of high art has invaded our gardens, and everything has been sacrificed to the ribbon and pattern border—where diversity of tint, no doubt often very skilfully combined, and regularity of outline have had unlimited sway. Doubtless the effect at first both pleased and surprised, bright and gay combinations delighted the eye; everything was neat and in order. But, alas! as nothing in this world is perfect, so after a time it was found that eternal regularity of colour and outline grew tiresome, and that the scarlet Geraniums, blue Lobelias, and yellow Calceolarias repeated in every garden failed to please," and so the passage goes on at some length, ending in this way.

"After all this system has the following great objections. 1, The eye wearies after a while of the eternal pattern making, and rests with preference on irregular and diffused outlines, as exemplified by Nature's grouping. 2, The majority of plants used for pattern borders are entirely devoid of fragrance, and the sense of smell is not gratified. 3, Under the pattern system for eight months of the year the beds are devoid of beauty, and except such few as are filled in with spring bulbs all is bare and desolate."

This seems to me a very formidable indictment against this kind of gardening, and I for my part take no interest in it; and again, while everybody is free to have his own opinion, and though I fear I am in a hopeless minority, as a rule, I must say I do not care very much for flower shows. There is so much that is very unnatural about them, and they leave out of sight the freshness, the variety, the many-sided look with which all Nature abounds. A few points are fixed upon to the exclusion of everything else, and very often what I should call an utter monstrosity wins the day—e.g., a prize Pansy is a very artificial thing indeed; and I should say an ugly one.

I have before me some of the requisitions taken from a book on florists' flowers which are as follows, "It must be perfectly circular, flat, and have a smooth edge; the petals should be thick and of a rich velvety colour; whatever the colour, the three lower petals should be alike; the two upper should be uniform, and there should be no notched edges, no crumpled petals, &c., &c." I may be quite wrong, and I daresay I am, but I would not grow a flower under such bondage as that, and I dispute its being beautiful altogether; more than that, flowers look so uncomfortable at a show. Wordsworth has said, "Tis my belief that every flower enjoys the air it breathes," but I am certain I have been at exhibitions on a hot summer's day, when the tents were so stuffy that it seemed very probable that we should all be asphyxiated, and the poor flowers looked as if they were crucified.

In nothing of this sort my delight in a garden is found. My aim is the following. I desire first and foremost to have flowers with me all the year round, and never to be without them, excepting in the time of severe frost. From January to December the ceaseless round goes on, and then I think that these flowers become one's friends, and the closest tie is formed. Secondly, we should get to know as much as possible about these plants—e.g., so far as it is compassable to do it; the order and the family to which they severally belong, the affinities and relationships they have, and where each one fits into the great procession of Nature, and the exact place it has. I do not say that I can do this in my garden half so much as I should like to do it, but it is a point to aim at nevertheless, and very especially as connected with a garden (for it is not a studio or laboratory of which I tell) one desires, unless it be about a very common thing indeed, to find out something about the habitats and surroundings of all these flowers, the kind of way in which each one manages to live at home, for this gives the clue more or less to the best method of growing them. Let me only add that we must never servilely copy what we find, for there would be certainly a mistake in doing that. One screw loose, so to say, would throw the whole thing out of gear; but still we must have some general ideas, or no progress can be made at all. It would not do to put a water-loving plant—e.g., a Kämpferi Iris on a rockery, nor an Oncoclycus Iris from the plains of Central Asia, and, therefore, accustomed to drought, in a pond. We must more or less find out what each of our favourites requires, and copy it here in a way, or (which is very often the better plan) give it something which will do instead of that which it has been accustomed to receive.

There is a wonderfully accommodating power in plants, but you must not drive it too far, and should rather follow than force; and I venture to think nothing in the province of a gardener is of more importance than sympathy. If he has it he gets to see into the wishes and the desires of the creatures whom he is tending. Constant use and familiarity give him a sort of second sight, and he can oftentimes treat a plant off-hand to just what it requires. So I should think it is with an experienced doctor, whose power for diagnosis must increase. I was reading an account the other day by Mr. Dolling of his Church work in

Landport, and I came across an assertion with which I am heartily in accord. He says that "flowers sooner than men find out those that love them," and nothing can be truer than that. More even than this, there is often the greatest satisfaction and pleasure in finding out about some very difficult subject—perhaps after repeated failures with it—just what it requires. It comes to you like a shot by some sudden inspiration, sometimes from an accidental cause, and it satisfies you and pleases you in a way which cannot be exaggerated.

I have many plants in my garden which used to give me a great deal of trouble, and now give me no trouble at all. It has all turned on very little points. Some unsuspected cause has been at work, and the wonder is that one never thought before of what is so simple at last. Max Leichtlin showed me the other day at Baden Baden a plant which had bothered him I think for eighteen years, but at last by growing it in close connection with another plant the whole difficulty has been overcome. There is a vastly great difference between these tricks of cultivation with plants and experiments on living animals. No tortures of vivisection are required to find out the secrets which it is desired to lay bare, and if a great mistake has been made—as too often occurs—there are no very dreadful consequences to ensue. If I do lose a plant I hope for better luck next time; the loss is repaired as soon as possible, and I begin again quite complacently. *Mutisia decurrens* is an instance of a plant which used to be very troublesome to me, but has now ceased to be so. Many others might be given.

Let me say that I don't believe all the world over there is a much better little spot for the cultivation of plants than the Isle of Wight, and the north side is better than the south, the reason being that we have better soil, and we are not nearly so much exposed to the ravages of wind as they are in the Undercliff. I should say that about Ryde the advantages for growing plants and shrubs are very great indeed; the soil and the sunshine are in their favour, and the moisture-laden atmosphere, which some of us do not like for ourselves, suits them exactly. It is often wonderful to me to reflect how in my little bit of a flower garden which is about three-quarters of an acre in size, the denizens of so many climes agree to live together, and somehow to a certain extent to lay aside their own peculiarities, and to be willing to do well in my hands. I would name at random the following, which are apparently quite happy under my care. *Rubus arcticus*, from northern regions of course; *Gerbera Jamesoni*, from the Transvaal; *Iris Gatesi*, from Asia Minor; *Campanula Allini*, from the Appennines; *Oxalis braziliensis*, from Brazil; *O. enneaphylla*, from the Falkland Isles; *Sparaxis pulcherrima*, from the Cape; *Rhododendron Aucklandi* and *R. Thompsoni*, from the Himalayas; *Rosa berberidifolia*, from Persia; *Poinciana Gillesi*, from South America; *Ramondia pyrenaica*, from the Pyrenees; *Morisia hypogaea*, from Sardinia; *Cypripedium spectabile*, from North America, &c., &c.

Another thing in a garden such as mine, and on which I lay great store, is to have room for very many mementoes of friendship. We all know what it is to long for the "touch of a vanished hand," and no better reminder can be had than what comes from the cultivation of a flower. It almost seems to speak to you when it comes into blossom, and has many words to say.

I have a Rose, *Souvenir de Malmaison*, which came into my hands about forty-five years ago, and which belonged to my own mother. It is quite as flourishing now as when I first made its acquaintance, and bids fair to live on; and if not of relatives or friends, yet in many cases flowers tell the story of some adventure or journey one has had. I only came across one plant when I was in Palestine that was actually in seed; the month of April is, of course, much too early for that, but I did see one, an *Anemone*, which was not far from Jacob's Well, and I avariciously gathered all the seed I could find, from which I raised several plants, which I had here for many years afterwards. In this sort of way everything is individualised, specialised as far as possible, nothing is taken in the gross. I don't care for great breadths of yellow and red, like the Tulip fields of Haarlem or the seed farms of Erfurt, but I love each member of my multitudinous family, and I try to do the best for it I can.

There is one other thing about which I would say a word, and that is I follow the teaching of Dr. Forbes Watson in preferring single to double flowers, and for this reason, there is very much more of character, and I venture also to think of beauty, about them. I know that this is rank heresy with some people; and the glorious Roses which are exhibited in the summer months seem flatly to contradict what I say, but I hold to it nevertheless about an exhibition Rose. One misses the stamens and pistil which give the real expression to the flower, and there is a sensuousness about the wealth of colour in the one case, I mean in the double flower, which I do not like half so well as the refinement and restrainedness and naturalness of the other, the single one. I consider Dr. Forbes Watson's book on "Flowers and Gardens" to be the most beautiful gardening book I ever came across. I advise anyone who wishes to take the best line about these things to have his mind saturated with the teaching of Dr. Watson, and then he will not go far wrong.

Some double flowers are positively ugly, and many are vulgar in the extreme. A double Snowdrop is very ugly indeed, and nothing, I think, is more vulgar than some double Dahlias of renown. It is true that double flowers hold on better in water and last a longer time than the others, and for this reason, and this only as a rule, I have anything to do with them. And now I see that I must not waste any more time with the preface, and I shall proceed to offer you a few selected illustrations, or typical examples they may be called, of the preceding

remarks. I will try very briefly to describe how the dance of the year goes on. As a rule yellow is the colour which predominates most of all at the beginning of the year—Primroses, Celandines, Cowslips, Narcissi, and other things are in evidence of what I say; and as in the woods so it is in the garden as well. Very soon deeper colours and greater brightness are to be seen, and it progresses, till at midsummer the whole place is aglow with Roses, Gladioli, Irises, and other things, and in autumn Tritomas, and single Dahlias and Asters abound.

(To be continued.)

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

As is customary, Simpson's Hotel was chosen for the holding of the annual general meeting of this excellent Society on Thursday, 14th inst. Mr. Harry J. Veitch, the energetic Treasurer of the Institution, occupied the chair, and as the clock struck 3 commenced business by calling on the Secretary, Mr. G. J. Ingram, to read the minutes of previous meetings, which were quickly confirmed by the members present. Amongst the company were noticed Dr. Maxwell T. Masters, and Messrs. J. Fraser, A. Outram, J. Hudson, H. B. May, J. H. Veitch, G. Wythes, G. Dixon, G. Munro, White (Secretary Worcester Auxiliary), and many others. After this preliminary business was concluded, the Secretary read the report of the Committee and the balance-sheet for the past year, both of which were adopted. It is a matter for congratulation to see how admirably the Society is worked, and to know the amount of good that is being done. Though the institution is adding more pensioners to its list this year than has been done on any previous occasion, we are quite of the opinion that the Committee is fully justified in its action, for the Society was never more popular than it is at the present moment—a popularity that it is hoped will be proved in a practical manner by largely increased subscriptions. With Mr. Veitch's able scheme we deal on page 45.

REPORT OF THE COMMITTEE FOR 1896.

The Committee have the greatest possible satisfaction in submitting their annual report for the year 1896, and in doing so they would express their sincere thankfulness that they are able to again congratulate the subscribers and friends of the Gardeners' Royal Benevolent Institution on its continued prosperity and ever-increasing usefulness to those in adverse circumstances for whose benefit it was established.

It is with much pleasure the Committee have to report that the annual festival dinner held in May last was one of the most successful in the history of the Institution, and they take this opportunity of acknowledging their great indebtedness to the Right Hon. the Earl of Lathom, G.C.B., who so kindly presided on that occasion, and whose earnest appeal on behalf of the funds of the Charity elicited such a generous and substantial response. The Committee desire also to offer their most sincere thanks to those gentlemen who so kindly acted as Stewards, and to all friends who in any way rendered assistance in contributing to the success of the anniversary.

In the past year eighteen pensioners have passed away, four of them leaving widows, three of whom, whose cases having been investigated and found to be deserving and eligible, have been placed on the pension list at £16 per annum in succession to their late husbands, in accordance with Rule III., 13. The names of two pensioners have been removed from the list, their circumstances having altered, whereby they are no longer eligible to receive aid from the funds. The Committee are glad to announce that they have decided to recommend an increase of twenty pensioners to the number at present on the books, ten of whom, having been accepted in conformity with Rule III., 5, they ask the subscribers to place on the funds without election. The remaining ten will be elected by the votes of the subscribers in the usual way, making a total number of 161 pensioners on the fund. It is a great pleasure to the Committee to feel justified in thus increasing their liabilities, and to recommend to be placed on the pension list the largest number of candidates ever admitted at any one election since the establishment of the Institution; whilst at the same time they regret that with liabilities, which it is impossible for them to accurately estimate, they are unable to render assistance to a greater number of those applicants who are appealing for aid.

It is gratifying to the Committee to be able to report the formation of a new branch of the Institution at Exeter, which was inaugurated after a most successful meeting held at that place, presided over by the Mayor of Exeter and addressed by the Treasurer and the Secretary of the Institution, and the Committee would express their hearty thanks to the promoters of the meeting, and especially to the Hon. Treasurer and Secretary, for their assiduity and energy, which went far to insure its success. They would also present their grateful thanks to the Hon. Treasurers and Secretaries of the Worcester, the Bristol and Bath, the Wolverhampton, and the Birmingham Auxiliaries for their services and ungrudging labours in advancing the cause.

In the past year a meeting was held at York, presided over by the Lord Mayor of that city, in furtherance of the objects of the Institution, and from the success which attended it the Committee believe that a greater interest will be taken in the Charity in that part of the country.

There have been also held a floral service at York Minster, a floral and fruit stall in connection with a floral exhibition at Exeter, presided over by county ladies, garden fêtes at Osberton and Reigate, fruit show at Reading, and concerts at Altrincham on behalf of the

funds, to the organisers of which, and to the other friends in various parts of the country who have assisted the Institution in any way, the Committee would tender their very hearty thanks.

In drawing attention to the fact that the present year will witness an event which is unparalleled in the annals of this country—viz., the completion of the sixtieth year of our beloved Queen's beneficent reign—the Committee beg to announce that they have determined to endeavour to commemorate so unique an occurrence by establishing a special fund, to be called "The Victorian Era Fund," the interest of which shall be devoted to the temporary assistance of those applicants who are waiting to be placed on the pension list, and who have been subscribers to the Institution. This proposal has already met with hearty and unqualified approval from His Grace the Duke of Westminster (President), Baron Schröder (Vice-President), C. Czarnikow, Esq. (Vice-President), N. Sherwood, Esq. (Trustee), Harry J. Veitch, Esq. (Treasurer), to whom the Committee are indebted for the proposal, and many other friends of the Institution, who have also promised generous contributions towards this object. The Committee would point out that Her Majesty has been the Patroness of the Charity for forty-five years, and only last year evinced her continued interest in its welfare by contributing £25 to its funds, and they believe that in attempting to celebrate the Diamond Jubilee of Queen Victoria in such a manner and with the purpose in view they will receive the support and practical sympathy of all friends of the Institution, as well as of those who take an interest in gardening and flowers. The Committee have also resolved, in honour of the event, to send on June 21st next the sum of £5 to each unsuccessful candidate at the present election whose name is then on the applicants' list.

It is with feelings of deep regret that the Committee have to record the decease of their valued colleague and friend, Mr. James Webber. From the year 1844 his family had been warm supporters of the Institution, whilst for the past twenty-one years he himself had been a member of the Committee, and had invariably done his utmost to promote the interests and further the objects of the Institution, and his loss will be severely felt and his services greatly missed.

The Committee, in conclusion, have the privilege and the pleasure of announcing that the Rt. Hon. Lord Rothschild has very kindly undertaken to preside at the fifty-eighth anniversary festival dinner on Thursday, May 26th, 1897, at the Whitehall Rooms of the Hotel Métropole, and they confidently appeal to all those who are interested in the welfare of the Charity to do their utmost to make the anniversary a marked success. The Committee earnestly hope that the thankfulness expressed for the success attained in the past will be an incentive to further exertions, so that the good work which has been carried on by the Institution for fifty-eight years may continue to grow and prosper.

BALANCE-SHEET, 1896.

DR.	£	s.	d.	£	s.	d.
To Balance	905	15	5
„ Deposit	1265	0	0
„ Annual subscriptions	1335	7	0
„ Donations at, and in consequence of, annual dinner, including stewards' lists, and collecting cards	2492	1	11
„ Return of Income Tax	22	19	10
„ Advertisements in annual list of subscribers	47	11	0
„ Dividends and interest on deposits	841	4	3
				4739	4	0
Total	£6909	19	5
CR.						
By Pensions and gratuities	2787	18	0
„ Expenses of election and annual meeting	15	11	7
„ Secretary's salary	250	0	0
„ Office assistance	26	0	0
„ Rent of office	62	10	0
				338	10	0
„ Printing, general, including annual reports and lists of subscribers, appeals, &c.	105	16	3
„ Stationery, including new subscription books	37	17	8
„ New rules	7	2	6
„ Book of cheques	3	0	8
„ Expenses of annual dinner	£170	18	0	
„ Less tickets sold	86	2	0	
				84	16	0
„ Honorarium to J. S. Rowe	2	2	0
„ Postage of appeals	14	15	5
„ Postage of reports, list of subscribers, voting papers, ordinary postage, and incidental expenses	54	19	10
„ Deputation and travelling expenses	10	10	9
„ Advertisement	2	2	0
„ Bank charges	0	3	6
				323	6	7
„ Investment of life subscriptions, Midland Railway 3 per cent. Debentures	500	0	0
„ On deposit	2015	0	0
„ Balance with Treasurer	929	13	3
Total	£6909	19	5

(Signed)

THOMAS MANNING
THOMAS SWIFT
JESSE WILLARD

Auditors.

After the balance sheet had been read the election of officers for the ensuing year was proceeded with, and it is needless to add the proposal that Mr. H. J. Veitch be re-elected Treasurer was received with acclamation. This was also the case with respect to a similar proposal regarding Mr. G. J. Ingram. Each gentleman briefly responded. The other officers, including the Auditors and the Arbitrators, remain as before.

ELECTION OF PENSIONERS.

Owing to the immense number of votes polled on this occasion—nearly 70,000—the scrutineers had an arduous duty to perform, and it was not until about half-past five that the result of the poll was declared. Mr. G. Munro read the declaration, showing that the new pensioners of the Institution and the number of votes gained were:—Joseph Monk, 3957; Charles Smith, 3762; William Milne, 3651; Edmund Papworth, 3395; David Davis, 3307; George Ashby, 3255; William Lee, 3190; Eliza Webb, 3107; Thomas Simms, 2930; and Rachel Jefferson, 2802. Immediately Mr. Munro had read the results a second time Mr. Ollerhead, gardener to Sir Henry Peek, Bart., Wimbledon House, tendered his thanks to all who had assisted in electing Mr. Milne as a pensioner of the Institution, and Mr. Ollerhead showed his gratitude by giving a donation of £20. Votes of thanks to the Scrutineers and to the Chairman for presiding brought the annual meeting to a close.

LARK PUDDING DINNER.

About seventy members and friends of the Institution gathered at Simpson's, at 6 P.M., for a friendly supper. The chair was taken by H. E. Milner, Esq., who was supported by Messrs. H. J. Veitch, N. N. Sherwood, H. B. May, H. Cutbush, J. Laing, A. Barron, J. Hudson, G. Wythes, A. Outram, Owen Thomas, G. Munro, J. H. Veitch, J. G. Veitch, &c., &c. After supper, or lark pudding dinner, as the function is popularly termed, Mr. Milner gave the usual loyal toasts. In a few well-chosen words the Chairman proposed "Success to the Gardeners' Royal Benevolent Institution." He showed how membership eventually entitled the subscriber to the benefits of the Institution if he needed such, and he advised all gardeners to endeavour to subscribe 1 guinea per year. The Chairman also alluded to the "Victorian Era Fund" as an admirable idea for celebrating the sixtieth year of Her Majesty's reign, and added, that should the needed £5000 be forthcoming—and of this he had little doubt—it should form an additional attraction to gardeners, as, by it, all waiting to be elected as pensioners would be entitled to relief according to the number of years they had been members. The Chairman's speech was applauded, and the toast duly honoured.

Mr. Harry J. Veitch, in responding, expressed the pleasure they felt in having Mr. Milner as Chairman. He eulogised the services rendered to the Institution by the late Mr. J. Webber during his twenty-one years' connection with it as Committeeman. As Treasurer of the Institution he was sorry they could not put on more pensioners, but he was pleased that in no year had they put on so many as in the present, while to all unsuccessful candidates £5 would be given, as in the Jubilee year. He drew the attention of the meeting to the number of unsigned voting papers sent in, and said that at the election just held no less than eighty-two papers, containing 890 votes, had to be cancelled from this cause. Mr. H. J. Veitch then propounded his scheme for celebrating the sixty years' reign; this to be devoted to relieving those who were unsuccessful in becoming elected as pensioners. They needed a sum of £5000 for investment, and the interest from this would be divided annually according to the number of applicants, and in proportion to the length of membership of each individual. Not more than £1 per annum per year of membership would be given, so that no one would receive more than £14 in one year without becoming a pensioner, which he could do as a matter of course after fifteen years' membership. The Victorian Era Fund would help those who had been provident. Mr. Veitch instanced a case of husband and wife who, between them, had received £584 from the Institution, and yet had never paid a penny into its exchequer. The subscription list was then read showing promises of over £1500, and Mr. Veitch remarked that a circular letter would be sent to the principal gardeners and nurserymen throughout the kingdom asking for help in furtherance of the scheme. Mr. Veitch was warmly applauded.

Mr. H. B. May proposed the "Health of the Committee," and this toast was responded to by Mr. S. M. Segar and Mr. J. Hudson, the latter remarking that gardeners as a body did not help the Institution as they should. The task of proposing "The Honorary Secretaries of Auxiliaries and Country Friends" was in the hands of Mr. G. Munro. He considered the establishment of auxiliaries was a great success; there were now five of these, and the income from them amounted to £400. Mr. White of the Worcester Auxiliary had sent £165 in 1896, and already had handed in a cheque for 25 guineas as the result of his 1897 work. Mr. White was well received and suitably responded. Mr. Drewitt spoke on behalf of country friends.

Mr. N. N. Sherwood gave the "Health of the Chairman," and expressed the pleasure they had in being presided over by one of the ablest gardeners of the day. Mr. Sherwood also wished success to the Victorian Era Fund. The toast was received with musical honours, and Mr. Milner having responded the proceedings were brought to a conclusion. During the evening songs and instrumental music were rendered by Mr. H. Turner, Mr. Munro, jun., Mr. J. White, and other friends.

GASTROLOBIMUM VILLOSUM.

THIS is a very pretty shrubby plant, and one that should be more generally grown for the embellishment of greenhouses and conservatories. As will be seen by the illustration (fig. 17), the flowers are on small racemes, which are freely produced during the spring and early summer. The standard, or upper portion of the flower, is large and of a dark orange colour, while the wings and keel are claret coloured. The leaves are dark green, terminating in small hooked spines. The stems and leaf margins are thickly set with hairs, from which character the specific name is derived. The species under notice, as indeed do all the *Gastrolobiums*, require similar treatment to that generally accorded greenhouse hardwooded plants. A compost of



FIG. 17.—GASTROLOBIMUM VILLOSUM.

fibry loam, peat, and sand will suit it admirably, and rather firm potting is essential. Efficient drainage must also be provided, and careful watering is of the greatest importance.

AUSTRALIAN FORESTS.—The forests of Western Australia are exceedingly rich in trees of economic importance, among which the Jarrah, or *Eucalyptus marginata*, is now the most important. In constructive work, where wood is brought into contact with soil and water, this timber is superior to that of any other wood in that forest. A healthy tree of average size is from 90 to 100 feet high and from 2½ to 3½ feet in diameter at the base, and it will grow so as to produce logs 2 feet through at the base in about fifty years. It grows in sections where the rainfall ranges from 35 to 40 inches in the year, and the wood when dried weighs 60 lbs. a cubic foot. It is red in colour, takes a good polish, is easily worked, and is good for piles, bridges, boats, furniture, railway sleepers, and charcoal. It is usually found mixed with or near the Karri, or *Eucalyptus diversicolor*, a giant species, straight and regular in growth, umbrageous in appearance, good specimens being 200 feet high, 4 feet in diameter breast-high, and with a stretch of 120 to 150 feet from the ground to the first branch. It is a rapid grower, and will produce marketable timber in from thirty to forty years. This wood is red in colour, very much resembling that of the Jarrah. Its texture is hard and heavy, and it is tough and not easily dressed. For bridge planking, flooring, and beams it is unequalled by any wood in the colony. Karri timber is exported to London for paving the streets, since its surface is not easily rendered slippery.—("Times.")



HAIRY CHRYSANTHEMUMS.

IN spite of the number of varieties that have been raised and distributed since the advent of Mrs. Alpheus Hardy six years ago, how few of them are appreciated. During a lengthened tour of all the best shows this season I seldom saw more than one variety—Hairy Wonder. This was sent out in 1894, and is far and away the best of the whole section. Not only are the blooms of full size, but the florets incurve regularly, and the hirsute appendage to each is fully developed. The colour (deep fawn) is pleasing. No difficulty is encountered in obtaining really fine exhibition blooms, by allowing the plants to make their natural break in April, afterwards securing the crown bud. This is a variety that does not require much feeding.

It is now two years since I saw a really good bloom of Mrs. A. Hardy. Mrs. W. J. Godfrey, owing to the easier growth, has taken the place of the original variety. This, however, does not appear to meet with much favour; seldom can a good bloom be met with. The florets in this are broader than in any other of the section, which now numbers twenty-two, according to the Jubilee edition of the N.C.S. catalogue. Considering the number a poor representation is the actual result. The novelty of cultivating hairy Chrysanthemums has evidently worn off.—E. MOLYNEUX.

CHRYSANTHEMUM NOTES.

"T. G.'s" heading, "A Few Scrappy Chrysanthemum Notes" (page 30), appears characteristic of his writings, for they furnish as interesting reading as anything that has appeared in the Chrysanthemum columns for some time, both from a humorous and practical point of view. I am sure many beside myself feel indebted to your correspondent for his outspoken remarks and the information given respecting the newer varieties and their suitability for market work or as decorative plants for private use.

"T. G., Devon," evidently is no amateur in catering for the markets, nor restricted in the indulgence of the element of novelty, otherwise he could not have given such competent advice so readily for the benefit of those readers who are anxious for knowledge but without the means of obtaining it; at any rate, so closely on the introduction of the newer varieties. The exhaustive selection which he furnishes, and which is supplemented in the Editor's footnote, renders it unnecessary to act on the suggestion which he gives in relation to Mr. Molyneux and his annual selection so far as affecting the number of varieties given for the purpose of late flowering, but we may wish to shout to him "Go on" in the cultural aspect of the case.

There is no doubt a good deal of truth in the statements of "T. G." as regards the craze for size, but I would ask him not to be too severe on the general grower, who may be fired with ambition for prize winning, because they have their dictates in the Judges who award the prizes and the specialists who place them before the notice of their patrons in their annual catalogues. The man who can produce size with quality and evenness of blooms on his stand obtains a better chance than his fellow competitor who has quality without evenness in his products, and as the aim of the exhibitor is to win he may be pardoned for following up the craze for size.

There is little doubt but that "those exhibition chaps" have often a poor or undervalued regard for the decorative class of Chrysanthemums, but at the same time there are some employers who are quite satisfied if their gardeners can furnish a good display of the large specimen blooms in the autumn or win a good share of the prizes at the exhibitions selected for competition.

I am pleased to know I have been the medium for gaining a reprieve for L. Canning without a lengthy petition, and inducing "T. G." to try the plants a second year. If his experience compare with mine I think he will be satisfied with the results. There was scarcely a comparison between the yearling plants and those grown the second year in my case. Is not Jeanette Sheeham a pale yellow sport from L. Canning? I shall add Elmer D. Smith to my collection, and no doubt others will do so on the recommendation of "T. G.," for it is a colour greatly needed at Christmas.—W. S. Wilts.

THE YOUNG GARDENERS' DOMAIN.

TOOL-HOUSE AND TOOLS.

WHEN we think of January and the garden together we are apt to fly to the conclusion that very little can be done then; but when we come to consider all that may be done in connection with all that wants doing to prepare for the superabundance of spring work, which will become urgent with the first break in the weather, we remember that the first month in the year will not be a bit too soon to prepare for the eleven which are to follow it.

A job which may most usefully occupy the leisure of winter is to set the tool-house in order, putting up new shelves, hooks, and nails wherever they are wanted, and finding a good and appropriate place for every tool and garden appliance. It is a good time, too, for getting all

the tools set in order, while those that require repairing can best be spared. May I tender thanks for the space allocated to the "Young Gardeners' Domain?" No one more sincerely trusts that it may inspire further energy in our ranks than—NEMO.

MICE AND CINERARIAS.

THIS being my first attempt to write to any of the gardening papers I fear I shall not be able to wield my pen so easily and fluently as some of our indefatigable subscribers. Having charge of the glass department on a medium-sized garden in Surrey I think I know a little about some of the thousand and one difficulties that the young men of the gardeners' domain have to contend with. I should like to mention one now—viz., mice and Cinerarias. We have here a nice batch of plants, averaging from 8 inches to 18 inches high, and about the same distance through. Having placed them in frames in a cold Peach house to guard against frost, the mice have attacked them seriously, eating some of the plants right down to the soil. Two well-known remedies, and almost a sure and certain doom for mice, are steel traps with grease, and figure-of-4 traps with cheese. But these have been a complete failure in this case, so we have had to resort to poisoning, which has answered fairly well; but still they come. I should like to hear if any brother in the craft has been pestered with mice this season, and, if so, how he got rid of them.—ANXIOUS G. H.

[It seems if mice have their drawbacks that they also have their uses—in stimulating the victim to "wield the pen."]

POINSETTIAS.

WHEN well grown the Poinsettia is one of the finest and most taking plants we have. Its brilliant scarlet bracts are very telling, either in the drawing room or arranged amongst other plants in the greenhouse.

The plants, having finished flowering and been rested, should be taken to a stove temperature, afforded a good watering, and be kept nicely moist by the syringe. Thus treated they will soon break into growth. About the end of March, the growths being 3 or 4 inches long, should be taken off with a slip of the old wood attached. These should be inserted in 3-inch pots, using a sandy compost. Plunged in a strong bottom heat they will soon root. When well struck they must be stood on a shelf close to the glass. The temperature of the house should be about 70° by night.

As soon as the pots are well filled with roots transfer to 5-inch pots in a compost consisting of loam, leaf mould, sand, and a little decayed manure. Be very careful in watering, both now and all through the season, as they soon lose their bottom leaves if too much is given. If this occur they become the reverse of pleasing, being unsightly objects indeed. Continue to grow in a stove temperature. Shade from sun; the leaves are now very tender, and soon scorch. Early in July they should be ready for their final shift. Use 7-inch pots. The compost advised above will do, with a little more manure added. In about a month lower the temperature to 60°; 65° by night. Continue to harden them by the gradual admission of more air, less shade, and syringing until they can bear the house fully open day and night, and no shade.

During the growing season an occasional application of some proved fertiliser is very beneficial. Grown thus they will be sturdy plants, with large deep green leaves down to the pots. When the bracts appear remove the plants to a temperature of 60° by night until fully expanded, when they may be kept cooler, and the bracts will last in perfection a long time. If it is required the old plants may be grown as advised above, but be later in starting them into growth.—SEMPER.

EARLY FORCING — PEACHES AND NECTARINES.

(Concluded from page 38.)

THE thinning of the Peaches and Nectarines may be proceeded with as soon as the fruits have commenced swelling freely. They should be thinned out at intervals of a few days, and the sooner this operation is completed the better it will be for the remaining fruit, as when allowed to remain too crowded the trees are liable to become exhausted. The average crop of Peaches is about one to every square foot, but if the trees are over-robust a heavier crop may be taken from them in order to keep the trees in a good fruit-bearing state. Always keep a sharp look-out for insects. The aphid or green fly will in a few days, if neglected, spread at an alarming rate, and so cripple the shoots that they are a long time making any headway. If these pests are dealt with promptly when first seen a puff of tobacco dust will generally settle accounts for them, but if they appear in different parts of the house it is the best to fumigate.

Red spider and thrips are very destructive pests to the Peach. They may be got rid of by syringing with the XL All liquid insecticide, but if the trees are well syringed with clear rain water these troublesome pests are kept at bay.

The greatest possible care must at all times be exercised with regard to ventilation. Air should be admitted gradually, commencing in the early morning with the top ventilators. We must be guided entirely by the external atmosphere, which if cold will soon give a check to the growth if admitted too freely. To guard against this the temperature may be allowed to get higher than usual rather than admit the cold air in too great a quantity. Close early, before the sun leaves the house.

During bright weather the paths and borders should be sprinkled with tepid water occasionally during the day. Any young shoots that seem to be growing over-robust may be stopped to direct the sap into

more legitimate courses, and to sustain the full capacity of the principal leaves; this should be proceeded with so long as the trees remain growing, the leaders given one bud each time, but the laterals are stopped at the first leaf, where all growth afterwards is removed.

When the fruit begins ripening a little air is left on at night, gradually increasing it until we have the full amount on night and day; this will prove beneficial to the flavour of the fruit. It must always be remembered that three essentials to flavour in Peaches are sun, light, and air. When the fruit commences to colour we must be careful to get it all exposed to the sun, and should any leaves be shading it they must either be tied back or half of the leaf removed.

The ripening of the wood must be attended to thoroughly, as next year's crop will depend entirely on it. Always water the borders with water the same temperature as the house, and at no time should they be allowed to get dry, or a dropping of the buds will be the result. For early work Alexander and Waterloo will give satisfaction for Peaches, and Lord Napier will be found one of the most serviceable of Nectarines. —J. F. DONOGHUE.

THE BLACK CURRANT.

Now that we have such a chance as "The Young Gardeners' Domain" affords, I think it will be a source of improvement if we avail ourselves of the opportunity. For my first attempt I am going to write a little about Black Currant culture.

This useful bush fruit seems to thrive best on a fairly strong soil, deeply worked and well drained, with a good quantity of potash in it. When the bushes show signs of weakness, a good mulching with farm-yard manure early in spring will help them on. If we wish to grow the Black Currant on a very strong soil, it will be a great advantage to burn a portion, and mix a little sand with it; the burning will afford potash. It is not worth while attempting to grow Black Currants on light sandy soil without a good dressing of clay. Cuttings should be taken as soon as the leaves fall. One form of cutting is to take a young shoot, cut off a portion of the top, leaving it about 1 foot long; rub off all buds except three at the top, then insert the cuttings deeply in worked ground in rows 1 foot apart, and 6 inches asunder in the lines, leaving about 4 inches between the buds and the ground. In spring we shall have three shoots from the buds, and roots where the buds were taken off under ground.

Should the growth not be as robust as we like, a sprinkling of sulphate of ammonia will be helpful to them. In autumn these three shoots should be cut back to an outside bud, leaving about four plump buds on each stem. The following spring we shall have six long shoots from the top buds, and six small shoots from the lower buds; in the autumn the small shoots should be cut back to about half an inch of the stem, and the long shoots to about four buds. Continue cutting after this manner until the tree is the desired size. Pruning and transplanting should be done in autumn, and always cut close to a bud. Sometimes when a snag is left, frost and rain will cause the first bud to die.

A second form of cutting is to take a young shoot 1 foot long when the top is cut off, leave on all the buds, insert in deeply worked ground, leaving about 6 inches above the surface. With this kind we shall get strong shoots from above and below ground as well, but not quite so many roots. The shoots from beneath are called suckers. Pruning, manuring, and all else are the same as the other form. This is more productive, but most gardeners like the tree form best; it is better to keep in order, and the fruit does not get so dirty with rains dashing up the soil. —KNEDLINGTON.

[Penmanship good and composition fair, the chief faults being abbreviations of certain words, and omitting the article "the." The lines were too close by half, but written prior to the publication of our advice last week.]

WINTER TOMATOES.

WHAT vegetable is more appreciated than the Tomato during the winter months? and if properly treated fruits can be easily obtained all the year round. The system of growing them here, and one that seems to suit them for winter fruiting, is to sow the seed at the end of March in small pans filled with a light compost. After the soil has been well soaked we sow thinly, just covering the seeds. The pans are covered with a piece of glass and placed in a temperature of 65°. As soon as the seedlings appear the glass is removed and the pans placed on a shelf close to the roof that the plants may obtain the full light, otherwise they will become drawn and weak.

As soon as large enough they are potted in small 60's and placed back again in the same temperature. They require a little shading till they become well rooted, when they are removed to the frames and kept close for a day or two, then gradually admitting more air till they become hardened. They soon require repotting, and are then shifted into 6-inch pots, using a stronger compost of two parts loam with one part spent Mushroom droppings and a little leaf soil. At this period they require careful watering till they become well established, as owing to the large shift the soil is liable to become sodden, which soon checks the plants.

By the beginning of June they are ready for well washed 10 and 12-inch pots for fruiting. These are carefully crocked, as the drainage is one of the most important features. A good layer of rough fibry turf is placed over the crocks, and good strong soil is used, consisting of three parts loam to one of spent Mushroom bed refuse, with a little leaf soil and a good sprinkling of bonemeal. It is rammed firmly, filling the pots two-thirds full to allow a top-dressing later.

After potting they are placed outside at the foot of a wall facing south, to which they are trained, taking them up on the single stem system, and removing all side shoots. When well rooted they are top-dressed with much the same compost as used for potting, only having a little more artificial manure added, and after being top-dressed the pots are covered with half-rotten manure for the double purpose of protecting from the hot sun and retaining moisture. By keeping the side shoots removed they soon have fine trusses of fruit all up the stems. After the fruits have begun swelling the plants are fed two or three times a week. They are grown in this way till September, and then removed to a lean-to house facing south, where they are tied to wires 1 foot from the glass.

The house is thrown open on all favourable occasions, and kept dry, maintaining a night temperature of 50°. The fruits then commence to ripen, and we have always a good supply through the winter; with November a night temperature of 55° to 60° is kept. The variety is Osberton Scarlet, which seems equally well adapted for winter and summer. —A. C. W., Osberton Gardens.



FRUIT FORCING.

Cherry House.—A house of Cherry trees planted out or in pots is found here and there throughout the country, and the fruits they bear are very desirable additions to the dessert at the end of April and through May when the house be started at the new year. The utmost care must now be taken to have the trees perfectly free from aphides, which seem to emerge from the eggs simultaneously with the buds casting their scales, and they at once fasten on the growths. This they must be prevented doing by fumigating with some approved preparation of tobacco, so as to thoroughly annihilate the pests, for it is essential to a good set that the blossom be perfectly developed; therefore effect the destruction of the pests before the flowers unfold. Syringe the trees occasionally up to the blossom showing the loveliest of all white, but cease then, damping the paths and borders instead, and ventilating freely. Keep the house at 40° by night, 45° to 50° by day by artificial means, ventilating at 50°, and allowing a rise of 10° to 15° from sun heat, with full ventilation, closing the house for the day at 50°. Take care not to allow the border to become dry and remain in that state, but water as necessary, so as to keep the soil moist, yet not supplying it excessively so as to make the border sodden, and attend regularly to the needs of trees in pots.

Cucumbers.—Young plants must be shifted into larger pots as they require more root-room, keeping near the glass, putting a stick to those required for trelliswork. The soil should consist of medium textured fibrous loam, with a fifth of thoroughly reduced manure, and adding a little charcoal to keep the compost open and sweet. If a sprinkling of air-slaked lime and soot in equal parts be admixed with the soil it will be advantageous. Plants for frames can be stopped at the second rough leaf. The bottom heat should be 85°, top heat 70° to 75° by artificial means, falling 5° at night and advancing 10° to 15° from sun heat.

Winter-fruiting plants will need top-dressings occasionally, to keep them fruitful, and any that exhibit signs of exhaustion will be the better of fresh supplies in place of as much of the surface soil as can be removed without injury to the roots, using turfy loam, with a fourth well-decayed manure, a pint of soot, and a quart of wood ashes to each bushel. Such surface dressing provokes the emission of fresh roots, and when these are plentiful the plants can be invigorated by top-dressings of fertilisers washed-in or copious supplies of liquid manure. Keep the growths tied to the trellis, cut out exhausted growths, and train-in young shoots so as to maintain a succession of bearing wood, and consequently of fruit. Give each growth space for development, all the foliage full exposure to light, and above all avoid overcropping.

Figs.—*Earliest Forced Trees in Pots.*—The trees of such varieties as Early Violet, St. John's, Pingo de Mel, and Brown Turkey, started in November or at the beginning of December to afford ripe fruit at the close of April and in May, are forming fresh roots abundantly, therefore the bottom heat should be kept steady at 70° to 75°, bringing the fermenting material up to the rims of the pots, and instead of letting them extend over the rims into the fermenting material, place pieces of turf about 2 inches thick round the rims of the pots, and extending over or down the sides, which will keep the roots near and induce a sturdy growth, and the roots can be fed in the turf. To encourage active feeders from the collar fill the hollows formed by the turves with sweet lumpy manure or rough pieces of turf, and sprinkle these occasionally with a little approved fertiliser.

Keep a good but not excessive moisture in the atmosphere by syringing twice a day and damping as required in dry weather, taking advantage of every gleam of sunshine for raising the temperature to 80° or 85°; but admit a little air at 70°, increasing it with the temperature, closing at 75°, and so as to raise the heat to 80°, 85°, or even 90°. Let there be no lack of water at the roots, and with the drainage good

there is little danger of giving too much, many crops being lost by keeping the roots too dry or supplying water too late and irregularly. In dull weather the temperature should be kept at 65° by day and 60° at night, but 5° more in mild weather in both cases. Superfluous growths should be rubbed off, and the shoots stopped at about the fifth or sixth leaf; but trees making sturdy growth will not need stopping, and the finest Figs are borne on extensions. Yet stopping is necessary, especially growth likely to interfere with an equal distribution of the sap and the admission of light and air to all parts of the tree in equal share.

Early Forced Planted-out Trees.—The trees started early in the month and planted in inside borders of limited extent will, the borders having been repeatedly watered so as to bring the soil into a thoroughly moist state, be starting into growth, and may have the night temperature raised to 55°, and 60° to 65° by day from fire heat, with an advance from sun heat to 70° or 75°, but with moderate ventilation. Syringe the trees in the morning and early afternoon of fine days, the latter always sufficiently early to allow the trees to become fairly dry before night, and in dull weather omit the afternoon syringing. Weakly trees may have a good soaking of liquid manure at a temperature about the mean of the house, but it must not be too strong. This will induce the formation of roots, and active feeders being pushed from the collar and surface roots they should be encouraged by light mulching of lumpy material to spread outwards, and then the trees can be nourished to any extent by top-dressing of fertilisers or applications of liquid manure.

Melons.—Seeds sown early in the month have progressed so that the plants are in second leaf, and root action now proceeds rapidly; therefore attend to earthing, and when the small pots are occupied with roots shift the plants into 5-inch pots, always watering in advance of shifting, so that the roots are all preserved in turning out the plants, and not allowing them to become root-bound. Plunge in bottom heat near the glass, a temperature of about 80° sufficing at the roots; 65° at night, and 70° to 75° in the daytime artificially of top heat, with 10° to 15° rise from sun heat being suitable. Place a small stick to each plant for its support until it is large enough to transfer to a hillock in the Melon house, rubbing off the laterals as they appear up to the height of the lowest wire of the trellis. Plants intended for planting out in pits and frames, and trained over the surfacing of the beds, can be planted out as soon as they require more root room, or be shifted into larger pots, stopping them at the second rough leaf.

Soil for Melons.—Heavy loam is preferable to light, and that cut and stacked with about five per cent. of quicklime will have the herbage and its contained pests destroyed. The top 3 inches of a pasture grazed by sheep is most suitable, and this chopped up moderately small will grow grand fruit. An admixture of old mortar rubbish, say a sixth, supplies lime and grit, and the plants grow sturdier for a supply, which is often deficient in turfy loam, and quart of soot and two quarts of wood ashes to two bushels of loam makes the poorest soils suitable for Melons, whilst rendering it hateful to wireworms and slugs. Unless very poor soil or ordinary garden soil is used manure is not necessary; but it is a mistake to suppose that Melons cannot be grown in ordinary loam, for add to it the soot and wood ashes, and, if deficient in humus a fourth of thoroughly decomposed manure free from worms, when it will grow almost any kind of fruit. Have the materials under cover a few days to dry, chop up the turf, and turn twice to thoroughly mix the ingredients.

Planting Cucumbers and Melons in Pits and Frames.—Have the beds made up about a week in advance of the plants becoming fit to plant out, employing sweetened materials, putting together compactly. Place a barrowful of soil in the centre of each light, flatten the top, which should be about 9 inches from the glass, and not more than 1 foot, the soil being about 10 inches deep. When warmed through place a plant in the centre of each hillock, press the soil firmly around each plant, keeping it about half an inch below the seed leaves, having the plant and soil in which it is planted moist, so as to prevent the need of water at planting. A circle of quicklime or dry soot drawn around each plant a little way from the stem will absorb superfluous moisture, and be a barrier against slugs.

Placing-out Cucumbers or Melons in Houses.—The house must be thoroughly cleansed, the woodwork with soft soap and hot water, glass with clean water only, both inside and outside, and wash the brickwork with hot lime. If there have been any eelworm scald the bed-walls with boiling water, and the bottom must be well soaked with it. Place the soil in a ridge, flattened at the top, and about 10 inches deep; and when warmed through turn a plant out in the centre of each light, or about 3 feet apart. Secure the stick to the bottom wire, and rub off the laterals up to the trellis. Maintain a night temperature of 65° to 70°, 70° to 75° by day, advancing to 85° or 90° from sun heat, keeping the bottom heat steady at 80° to 85°, or start at 90° if fermenting materials are used; but if from hot-water pipes 80° is sufficient, for fermenting materials lose heat, therefore it must be higher at the beginning.

THE KITCHEN GARDEN.

Manuring the Ground.—Advantage should be taken of the first moderately severe frost to wheel as much manure on the ground as it is intended to apply for the different crops. Comparatively fresh strawy stable manure is most suitable for the heavier soils, but those lighter and less retentive of moisture and fertility would respond to a dressing of mixed farmyard manure. Old mortar rubbish, sand, fine ashes, leaf soil, and burnt clay or fine soft ballast applied freely to heavy soils, forking them into the surface rather than burying deeply, serve to

keep them in a more finely divided and more fertile condition than formerly.

Digging and Trenching.—Where much digging has to be done an early start is desirable, but do not touch clayey ground while it is very wet on the surface. If it can be laid up in rough spits during this month, frosts and drying winds, followed by rains in February or March, may have the effect of pulverising it sufficiently to admit of its being got into a fine condition for seed sowing, also for Potato planting. If dug later, then the drying winds and sunshine in March and rain in April will have the same effect. Medium and light soils are less difficult to manage, though some of these ought not to be dug many days before cropping, owing to their liability to become badly saturated with moisture, which, if the ground had not been dug, would have passed away freely and naturally. Double digging and trenching ought to be done early in order to allow time for settlement. Never bring much virgin subsoil, and in particular any of clayey nature, to the surface at one time. A light surfacing may put new life into the top spit, but a whole spit of it, unless previously well prepared, might have the effect of making the ground sterile and unworkable.

Crops Requiring Manure.—Some soils give out much more quickly than others; but when a garden is closely cropped, and fresh rather than over-decayed manure is principally employed, it is not often too much is used. What the land does get sick of is an excess of humus, out of which the nitrogen, phosphates, and other elements have been washed or lost by evaporation. Those periodical dressings of old hotbed manure ought to be supplemented with or varied by an occasional dressing of newly slaked lime, applied at the rate of about half a bushel to the square rod every fourth or fifth year. Nearly every crop grown in a garden would require something more than humus, and those seasons when lime is not used artificial manures should be applied; those of a slow-acting nature, including superphosphate and kainit (potash), at cropping time, with a later dressing of the more quickly soluble nitrate of soda for the lighter soils, and sulphate of ammonia for the heavier ones. The ground ought to be most freely manured for Peas, Beans, Onions, Leeks, the Brassica tribe, Lettuce, and Tomatoes, Potatoes also paying well for liberal treatment. Supposing manure has been freely employed for previous crops, then little or none of it ought to be necessary for Beet, Carrots, Salsafy, Scorzonera, and Parsnips this season. Not only does strong manure make the roots of these grow too coarse, but it is also liable to fork them badly.

Seed Potatoes.—Far too many of these are stored in heaps during the late autumn and winter months, where they sprout prematurely and are greatly weakened accordingly. Ashleaf varieties in particular ought never to be pitted, nor is it wise to store them in bags, barrels, baskets, and deep boxes, as in these instances also premature sprouting has already become too pronounced. Lose no time in setting all early kidney seed Potatoes on their stalk ends in shallow boxes, packing them closely together. Store them in a cool, light position, covering closely only with paper mats or canvas whenever a severe frost is anticipated. In this way short stout sprouts will form, and the first step towards ultimate success assured. All other seed Potatoes ought also to be attended to, arranging them thinly in cool, dry, light quarters with a view to saving the first sprouts.

Early Peas.—Dwarf Peas may be successfully grown in pots, but are more profitable in pits and frames, whether these are glazed or only roughly protected. The 10-inch pot is a suitable size, and it must be three parts full with rich loamy soil. Sow the seeds thinly, press them in, and cover with 1 inch or rather more of fine soil. Not much water is wanted at first, but abundance of this and liquid manure will be required when the pots are well filled with roots. For frames and pits raise the plants moderately thickly in boxes of fine soil and place in heat. When 3 inches high all may be shaken out and replanted in beds of rich soil over a mild hotbed. Arrange the rows 15 inches apart, and plant moderately thickly, dropping the roots to their full depth in narrow trenches. Lightly stake and avoid undue coddling. Chelsea Gem is a good variety for pot and frame culture. If seed is sown in January on cold, wet soils much of it will perish; but if the weather keep mild and moderately dry, the early round-seeded varieties may be sown on lighter soils with a good prospect of an early crop resulting. With a little extra trouble, quite as early crops can be had by sowing the seed in boxes as advised for frames, or in 3½-inch pots, placing these under glass in little or no heat to germinate, and planting out when large enough.

PLANT HOUSES.

Palms.—During severe weather, when an excess of fire heat has to be used to maintain the desired temperature, thrips are liable to prove troublesome to these plants. A sharp look out must be kept for such pests, for if allowed to become established they soon injure the foliage, which may look unsightly for years. Once the insects make their appearance, sponge the fronds carefully with a solution of tobacco water in which a little soft soap has been dissolved, say 1 oz. to 4 gallons. After all have been sponged, fumigate the house once or twice in succession until every trace has been destroyed. Where these plants can be liberally syringed once or twice daily, according to the weather, they can, as a rule, be kept free from thrips but where the syringe cannot be freely used constant care and attention are needed. Do not overwater Palms at the roots, and, on the other hand, be careful not to allow them to become dust dry, or the foliage will soon present a sickly appearance. Maintain a night temperature of 60° where Kentias and other warm kinds are grown.

Adiantums.—Plants from which fronds have been gathered, and only small stuff remains, may be cut over and started again into growth.

If placed in a temperature of 55° to 60° they will soon commence pushing up new fronds, when they should be repotted without delay. If the plants need larger pots remove the drainage and any roots that may be crowded about the crocks; the remainder of the ball can be placed in the new pot without disturbance. If the plants are in pots large enough they may be divided by cutting them straight through the middle; the drainage should be removed and the plants potted without disturbing them further. The soil, which should consist of equal portions of good loam and leaf mould, with the addition of sand, must be pressed firmly into the pots. If the plants have been infested with small slugs thoroughly dust the crowns with soot. This will drive them out, and they can be picked off a short time afterwards. Continue this practice until the plants are perfectly free from these pests. A small white caterpillar-like grub occasionally infests these plants and feeds upon the crowns and young fronds just as they form to such an extent that seldom a perfect frond is allowed to develop. These can only be destroyed by thoroughly shaking away from the plants every particle of soil, when they roll out and can be destroyed. The best means of stamping them out is to burn any infested plants. After potting stand the plants on a moisture-holding base and syringe freely amongst the pots. Very little water will be needed until the plants commence to grow.

Gloxinias.—Any plants that are starting into growth where they have been stored away to rest will only draw up weakly if allowed to remain in a semi-dark place. The old soil may be shaken from the roots and the tubers soaked for a short time in tepid water and then left to drain thoroughly. After this they can either be potted singly or put in boxes amongst leaf mould and sand until they have well started into growth, when they can be placed singly in the pots in which they are intended to flower. Once the plants are started in pots we find they do well on a shelf fairly close to the glass, where the temperature ranges from 55° to 60°.

Eulalia japonica.—Plants that died down after use in the conservatory and have since been kept in a cool house may be removed to the forcing house or any structure where gentle warmth is maintained. They will soon commence to push new growths, when the plants may, if increased stock is needed, be divided into two, three, or more pieces according to their size. These plants are most useful in 5, 6, and 7-inch pots, and grow freely in any rich soil—good loam, sand, and one-seventh of manure will suit them very well. If gentle bottom heat can be given them after division they will soon become established, when cooler treatment will suit them well.

Begonia weltoniensis.—This is useful for conservatory decoration, as well as two or three other kinds of a similar nature. The earliest plants may be shortened back and placed in a temperature of 50° until they show signs of growth, when the old soil should be shaken from their roots and the plants repotted in a fresh compost. The plants can be placed in the same size pots or smaller. If the latter, they will soon need repotting. They will be found to succeed well in three parts of loam to one of leaf mould, with a liberal quantity of sand according to the texture of the loam, and one-seventh of old Mushroom bed refuse. Water with care until the plants are growing freely. They will start well in a vinery if no better position can be found for them.

Caladium argyrites.—A number of tubers should be started into growth; 2-inch pots are large enough in which to start them, or better still, place them in pans amongst light sandy soil, and after growth has commenced put them in pots. The pans or pots containing the tubers should be plunged amongst cocoa-nut fibre refuse in the propagating frame. Too much water at first often proves detrimental to them.

THE BEE-KEEPER.

SEASONABLE NOTES.

STARTING BEE-KEEPING.

THIS is a subject that requires some consideration, as judging from the numerous communications lately received, I am assured there are many readers of the *Journal of Horticulture* who are for the first time anticipating the pleasures of bee-keeping. To these I would say, Do not be daunted by a few failures, as there is no royal road to success; follow the advice given week by week in these pages, and if in doubt on any point, ask for information from the same source, and success should follow. Although there has been a succession of indifferent seasons for honey production, the present prospects are good. The winter up to the present has been mild, and the bees generally speaking are in good condition, but a mild winter is often followed by a cold spring, which is more trying to the bees than severe frosts at midwinter. At that season breeding is going on apace, and the worker bees have to be continually on the wing foraging for a supply of pollen and water so necessary for the feeding of the young bees. Many are thus lost owing to the cold winds and heavy showers prevailing.

The heavy rainfall experienced throughout the country lately is all in favour of a bountiful honey harvest. The weather is a great factor in honey production, a fact which should be kept in mind by all bee-keepers.

WHEN TO COMMENCE BEE-KEEPING.

To those who have had little experience in bee management I would recommend autumn or spring as suitable for making a start. If a colony of bees is obtained in the autumn there is the risk of their wintering safely, whereas if a start is not made until the spring there will be less danger of losing them, and as there is but little difference in the price the advantage is all in favour of the buyer.

A commencement might be made by purchasing a good stock of bees in a straw skep. They should be headed by a young queen bred during the previous season, and ought to weigh, including bees, stores, and skep, about 20 lbs. If of this weight in the early spring no feeding will be necessary, and if the weather is mild an early swarm may reasonably be expected. These should be placed in a frame hive on full sheets of comb foundation, and if given a little thin syrup for a few days will soon fill the hive with fully drawn-out combs, and be in prime condition to take full advantage of the honey flow when it comes.

The stock in the original straw skep will in all probability swarm again in about ten days from the time the first swarm left the hive. This is called a cast, and will be headed by a young unfertile queen. If the colony were a strong one, a second cast would probably come off within a few days. As this will also be headed by a young queen it should be placed in a separate hive next to the one containing the second swarm. The third swarm will be useless for storing a surplus of honey owing to there being so few bees, but the advantage to be derived from working them on this system will be readily seen at the end of the season, when the old queen which accompanied the first swarm may be destroyed, and the young queen from the third swarm introduced in its place. The bees must be united to the second swarm, and as the two stocks previously stood near each other no bees will be lost.

The bees remaining in the straw skep may be driven at the end of the honey harvest, and be placed in a frame hive and fed up for winter. If at all weak in bees they may be strengthened by taking a frame or two of brood and adhering bees from the other stocks. If worked on the above lines there will be three strong colonies for wintering, each headed by a young fertile queen, and if the season has been favourable a good surplus will have been stored by the first swarm.

An early swarm invariably works well, and for this reason, if only one stock is required, it is advisable to commence by obtaining a swarm, by purchase or otherwise; the earlier it is, the better chance of success. A swarm, too, may often be obtained several days, or even weeks, earlier by this means than if one depended solely on one stock.

It is well to remember that the old queen always goes with the first swarm, so that steps should be taken to introduce a young queen in due course. This may be done the following season, during the natural increase, as stated above. If an increase in the number of stocks is not required (but it is always advisable to have more than one) the old queen may be killed when the hive is well crowded with bees in the spring. A few days afterwards the combs should be examined, and all queen cells with the exception of one destroyed. The colony will thus in due course be headed by a young fertile queen.—AN ENGLISH BEE-KEEPER.

HIVES WITH TEN STANDARD FRAMES.

"AN ENGLISH BEE-KEEPER" (page 19) says when speaking of myself, "Your correspondent has not carefully read my previous notes on this subject or he would not have propounded the above query." I can assure "An English Bee-keeper" that I do read the articles in this *Journal* carefully, and my query was not a reflection on any system of management, but simply to turn on the search light in a friendly spirit. Your correspondent says, "I fail to see the advantage derived from allowing 100 lbs. of honey to remain in the body of the hive." So do I, for 30 lbs. is sufficient for winter stores.

The doubling system propounded by "An E. B. K." speaks well for large brood nests; the additional brood combs add to the strength of the hive. Does this not prove that ten standard frames do not give a hive strong enough for an "E. B. K."? To be candid, I do not like to extract frame combs that have been used in the brood nest. If we want the pure honey, and honeycomb of spotless whiteness, we must avoid combs from which bees have hatched.

Being the secretary of the Howdenshire Bee-keepers' Association, and having to call upon members, I have been able to compare results. Mr. W. Hall, Welham Bridge, told me that he has taken a good surplus from his large hives, containing twelve frames, 20 inches by 8½ inches, while hives with standard frames gave no surplus. Mr. W. Hall of Howden, who has a large apiary, tells me his hives with the 20 inches by 8½ inches last season did far the best. Where large hives are tried among the members of the Howdenshire B. K. A. they give the greatest satisfaction.—GEORGE HOWDENSHERE.

TO CORRESPONDENTS

All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Code of Judging (J. B.).—Write to the Secretary, R.H.S., 117, Victoria Street, London, S.W. The price is 1s. 1d., post free.

Price and Postage of Book (R. Lyon).—We cannot give the precise information you require, but you can obtain all particulars by writing to Messrs. George Bell & Sons, York Street, Covent Garden, London.

Night Soil for Vines—Nitrate (W. W.).—Night soil is one of the very best manures for Vines, especially that from earth closets, which contains a considerable amount of urine as well as solid matter, and there is little waste where sufficient dry earth is mixed with it to form a crumbling and easily applicable manure. Although the analysis be poor as compared with other fertilisers, it is a very satisfactory one in use, giving first-class results, especially with Vines, as it improves both the growth and finish of the Grapes to a striking extent. It should be applied without delay, as its constituents require some little time to become available as food for plants, a 2-inch thickness of top-dressing not being too much, but it should be pointed lightly into the soil. Nitrate (you do not say of what) would certainly promote growth in the Vines, but if you mean nitrate of soda it may not be desirable, as the soil is heavy, sulphate of ammonia being better, applying it not later than the starting of the Vines into growth, and about 1 oz. per square yard, or 2 lbs. per rod, pointing in lightly. If 2 ozs. of dissolved bones, dry and crumbling, were supplied at the same time it would be an advantage, still better with 1 oz. of double sulphate of potash and magnesia, or 4 ozs. of the mixture; sulphate of ammonia, one part; dissolved bones, two parts; double sulphate of potash and magnesia, one part. If, as you say, there is a tendency to sourness in the soil, add sulphate of lime four parts, and apply half pound of that mixture per square yard, pointing lightly in, not deferring application later than starting. If the night soil have about 10 per cent of air-slaked chalk lime, dry and floury, and dust charcoal, also perfectly dry, in equal proportions, mixed with it, the addition will improve it immensely for Vines and there will be little, if any, loss of ammonia, only use shortly after mixing. Ten per cent. means one part of the lime and charcoal to ten parts of the night soil.

Grafting Golden Yew on Two-year-old Shoots on Yew Hedge (B.).—The usual time of grafting Yews is in August, but you may practise it in the spring, first letting the sap flow freely in the stocks, or when the buds commence swelling. Select well matured growths of the Golden Yew some little time before then, and insert them in moist sand on the north side of a wall. It is well to proceed by side grafting, which means cutting a slice of bark and wood off one side of the stock, and then cutting the scion in such manner on one of its sides as to fit that made on the stock, so that the barks of both meet exactly, or at least on one side. Then a tongue can be made in the stock by a downward cut, and a slit in the scion upward, so that when this tongue is inserted in the slit of the stock and pushed downwards the barks of both will exactly coincide. It is well to leave a little growth or part of the stock above the junction, but not much, to draw the sap to it and insure "kitting," and also have a portion of the scion below the cut part long enough for placing in a phial of water to keep it fresh until the union is effected, securing the phial to the stock in the right place with lead wire. The scion should be properly bound to the stock with either matting or darning cotton, and then dress with either grafting wax or well tempered grafting clay, so as to completely exclude air from the junction. When the union has been effected, the ligature must be loosened, the part of the stock above the graft cut off neatly, and also the part of the scion below the union trimmed off, the first in an upward and the latter in a downward direction. The whole thing is much easier done than instructions given for doing it. If you do not proceed by what is known as bottle grafting, which we advise, whether you operate during the first fortnight of April or that of August, you must shade the graft after insertion, otherwise it may dry too much to unite with the stock.

The Currant Bud Mite (J. F. W.).—The Currant mite, belongs to a rather extensive group of minute creatures, which are by some naturalists placed amongst Crustaceæ, and by others classed with insects. Present opinion, however, rather tends to put them, with sundry allies, in a group called Aptera, insects the wings of which have somehow disappeared, and legs and transformations are apt to vary considerably. Those in the genus *Phytoptus* either make galls upon leaves or secrete themselves in the buds of plants, which then become "puffy" or contorted and shrivelled. A good deal of notice has been attracted recently to the proceedings of *P. Ribis*, more especially in the case of the Black Currant. Owing to its minuteness and its mode of life the species doubtless passes unseen in many instances. There is ample proof that this mite is lurking within the Currant buds by November, if not earlier.

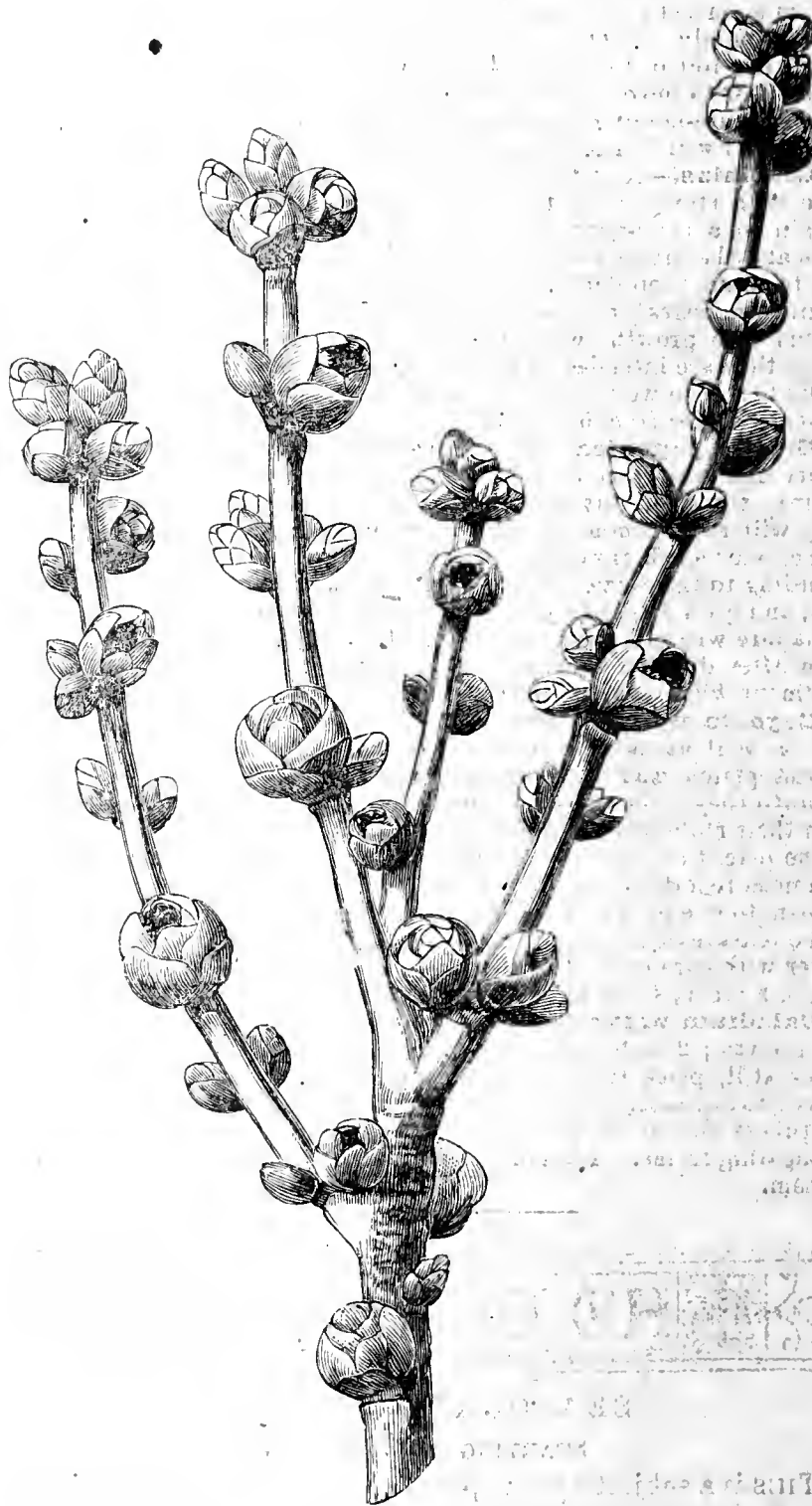


FIG. 18.—"KNOTTED" CURRANT BUDS.

It is, however, during the spring that our attention is called to them, when by their feeding between the young leaflets, abstracting their sap, they effectually stop the development of flowers, leaves, and twigs. As Mr. Andrew Murray remarks, "the buds attacked are seen to languish and decay, or to assume a rounded swollen form without pushing out ('knotted,' some correspondents style it). On tearing open one, hundreds of very small semi-transparent moving things may be seen by a lens. All the surface of the leaflets on which they are scattered has a moist raw-like appearance; in fact, the *Phytopti* have browsed on it until they have flayed it to the quick." Close and severe pruning is the method suggested by this author for the diminishing of their numbers, but he scarcely thinks their extirpation can be thus brought about. Syringing or washing the bushes with one of the many solutions or compounds that are efficacious for the destruction of insects might clear some of them out of the expanding buds in spring, but would not save the buds from dying off. Then the bushes where the mite has been observed might be also syringed early in the autumn, since there may then be a migration from bud to bud. Bushes infested with this destructive mite should never be propagated from. Young trees should be procured that

are perfectly clean and healthy, and be planted as far distant as possible from those affected. We have seen perfectly healthy bushes and others seriously knotted in plantations less than 30 yards apart, and we have cut down affected bushes entirely, burning the branches, the resulting growths from the "stumps" of the decapitated trees being quite free from the pest; but if the mite exist on one plant it soon spreads through a plantation.

Eucharis Mite (Novice).—Go over the bulbs, and remove all decayed portions carefully. The three outer scales of the bulbs have been removed in some instances. In your case it may be necessary to remove one or more, then wash the bulbs thoroughly in tepid water, but before doing so remove every portion in which these mites can secrete themselves. After washing lay the bulbs in dry sand to harden the outer scales in order that they can bear a stronger solution of insecticide, in which they should be well dipped. Any favourite insecticide will do, and may be used the strength that would destroy aphides (green fly).

Exhibiting Blue Cornflowers in a Collection of Wild Flowers (Johnnie).—"Father thinks" rightly. Blue Cornflower (*Centaurea cyanus*) is a "wild" or British plant, and one of the showiest of the blue-flowered annuals. It may occasionally be found in cornfields in various parts of the southern counties, but we have not seen it wild further north than Hertfordshire, in which county it is found on calcareous gravelly soils, and rivals in colour of flowers and size of plant any grown in gardens. It is, however, or rather the people who do not mind reaping where they have not sown and trampling crops down to satisfy their selfish ends, a great nuisance, therefore farmers take care to have as little of it as possible in their cornfields, especially when there is a footpath frequented by town residents skirting or passing through them. It is called Bluebottle in some localities and "Blwets" in other districts, being known to every one as Cornflower from its growing wild in cornfields in various parts of Great Britain.

The Papyrus and its Use (Bothyite).—The celebrated Egyptian Papyrus (*Papyrus antiquorum*), or Egyptian Reed, from which the ancient Egyptians made their paper, still grows in the marshes of Egypt, or in stagnant waters of the Nile. It is also found in Sicily, Syria, and Nubia, and extends even to Senegal. This plant rises, with a triangular stem, to the height of 8 or 10 feet, and surmounted with a large compound umbel of flowers, having long filiform involucres, the lower part clothed with long, hollow, sword-shaped leaves, of a brown colour. The root-stocks are long and tortuous, 4 or 5 inches thick; when young they are sweet and nutritious, and are eaten by the inhabitants; they also yield a fecula, which, with the base of the stems roasted, they use as food, and they suck their juice in the same way as they do that of the sugar-cane. When old, the root-stock becomes hard and woody, and was converted into cups, moulds, and other utensils; one use of it was to make covers for binding the leaves of the books, which were made of the stem. The whole plant is used for making boats in Abyssinia, a piece of the Acacia tree being put in the bottom to serve as a keel. The leaves and the stem have been twisted into ropes, and with the vertical fibres cloth is made. The ancients made their paper from the pellicle found between the pith and bark of the thick part of the stalk, and the plant being called babee in Syria, this word furnished the appellation Papyrus, from which our word paper is derived. The pellicles were peeled from the stems and cut into strips of equal length; the strips were placed side by side on a board in sufficient number to form a sheet; other strips were placed side by side in an opposite direction over them, so as to make the sheet sufficiently thick and strong; each sheet was pressed, dried in the sun, and polished with a shell or some other substance, and twenty sheets or upwards were glued together to form a roll. The breadth of any roll depended on the length of the strips, and was usually from 10 to 13 fingers broad, and the length depended on the number of the sheets. With the rays of the umbels of the flowers the Egyptians made chaplets for the heads of their gods. Under the arm of a great many of the mummies a small bunch of papyrus is found. It was doubtless of this plant that the "ark of bulrushes" was made in which Pharaoh's daughter found the infant Moses.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (W. H. J.).—*Asparagus Sprengeri*. (C. O.).—All your specimens were dead. (S. G.).—A good form of *Lælia autumnalis*. (A. J.).—1, *Cattleya Walkeriana*; 2, *Cypripedium venustum*; 3, *C. insigne*.

TRADE CATALOGUES RECEIVED.

Barr & Son, 12, King Street, Covent Garden.—*Seed Guide*.
H. Correvon, 2, Rue Dancet, Plainpalais, Geneva.—*Seeds*.
Fisher, Son & Sibray, Ltd., Handsworth, Sheffield.—*Seeds*.
Harrison & Sons, Leicester.—*Seeds*.
Laing & Mather, Kelso, N.B.—*Garden Seeds*.
B. Soddy, 243, Walworth Road, London.—*Seeds*.
J. Veitch & Sons, Ltd., Royal Exotic Nursery, Chelsea.—*Abridged Seed Catalogue*.
Vilmorin, Andreux et Cie, 4, Quai de la Mégisserie, Paris.—*Seeds and Bulbs*.

COVENT GARDEN MARKET.—JANUARY 20TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, $\frac{1}{2}$ sieve	1	3	to	2	Lemons, case	11	0	to	14
Filberts and Cobs, per 100 lbs.	40	0	45	0	Plums, $\frac{1}{2}$ sieve	0	0	0	0
Grapes, per lb.	0	6	1	6	St. Michael Pines, each ..	3	0	3	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Asparagus, per 100	0	0	to	0	Mustard and Cress, punnet	0	2	to	0
Beans, $\frac{1}{2}$ sieve	0	0	0	0	Onions, bushel	3	6	4	4
Beet, Red, dozen	1	0	0	0	Parsley, dozen bunches ..	2	0	3	0
Carrots, bunch	0	3	0	4	Parsnips, dozen	1	0	0	6
Cauliflowers, dozen	2	0	3	0	Potatoes, per cwt.	2	0	4	9
Celery, bundle	1	0	0	0	Salsafy, bundle	1	0	1	0
Coleworts, dozen bunches	2	0	4	0	Seakale, per basket	1	6	1	0
Cucumbers	1	0	2	6	Scorzonera, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Shallots, per lb.	0	3	0	0
Herbs, bunch	0	3	0	0	Spinach, pad	0	0	4	0
Leeks, bunch	0	2	0	0	Sprouts, half sieve	1	6	1	0
Lettuce, dozen	1	3	0	0	Tomatoes, per lb.	0	4	0	0
Mushrooms, per lb.	0	0	0	0	Turnips, bunch	0	3	0	9

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (various) doz.	6	0	to	36	Ficus elastica, each	1	0	to	7
Aspidistra, dozen	18	0	36	0	Foliage plants, var. each	1	0	5	0
Aspidistra, specimen plant	5	0	10	6	Genista, per dozen	10	0	15	0
Azalea, per dozen	24	0	42	0	Hyacinths large, per dozen	6	0	12	0
Chrysanthemums, per doz.	6	0	12	0	" (Roman), doz. pots	6	0	8	0
" per plant	1	6	2	0	Lycopodiums, dozen	3	0	6	0
Cyclamen, per dozen	9	0	18	0	Marguerite Daisy, dozen ..	9	0	12	0
Dracæna, various, dozen ..	12	0	30	0	Myrtles, dozen	6	0	9	0
Dracæna viridis, dozen ..	9	0	18	0	Palms, in var. each	1	0	15	0
Erica, per dozen	9	0	12	0	" (specimens)	2	0	63	0
" hyemalis, per dozen	10	0	15	0	Poinsettia, per dozen	9	0	12	0
Euonymus, var., dozen ..	6	0	18	0	Primula sinensis, per dozen	4	0	6	0
Evergreens, in var., dozen	6	0	24	0	Solanums, per dozen	9	0	12	0
Ferns in variety, dozen ..	4	0	18	0	Tulips, dozen pots	6	0	9	0
Ferns (small) per hundred	4	0	6	0	" in boxes, per dozen	0	8	1	6

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety

	s.	d.	s.	d.		s.	d.	s.	d.
Anemones, dozen bunches ..	2	0	to	4	Mignonette, dozen bunches	3	0	to	6
Arum Lilies, 12 blooms ..	3	0	6	0	Mimosa (French) per				
Asparagus Fern, per bunch	2	0	2	6	bunch	1	0	1	6
Azalea, per dozen sprays ..	0	6	1	0	Narciss, White (French),				
Bouvardias, bunch	0	6	0	9	dozen bunches	1	6	2	6
Carnations, 12 blooms ..	1	0	2	6	Narciss, Yellow (French),				
Christmas Roses, 12 blooms	1	0	1	6	dozen bunches	2	0	4	0
Chrysanthemums, dozen					Orchids, various, per dozen				
bunches	3	0	9	0	blooms	1	6	12	0
Chrysanthemums, 12 blooms	2	0	6	0	Pelargoniums, 12 bunches	6	0	9	0
Daffodils, dozen blooms ..	0	9	1	6	Pyrethrum, dozen bunches	1	6	3	0
Eucharis, dozen	3	6	4	0	Roses (indoor), dozen ..	1	0	2	0
Gardenias, dozen	4	0	6	0	" Tea, white, dozen ..	1	0	2	6
Geranium, scarlet, doz.					" Yellow, dozen (Niels)	6	0	9	0
bunches	6	0	9	0	" Red, dozen blooms ..	2	0	3	0
Hyacinths (Roman), 12					" Safrano (English),				
sprays, and per bunch ..	0	6	1	0	dozen	1	0	2	0
Lilac, White (French), per					" Pink, per dozen	3	0	6	0
bunch	8	6	5	0	Smilax, per bunch	3	6	7	0
Lilium longiflorum, 12					Snowdrops, dozen bunches	1	0	2	0
blooms	6	0	8	0	Tuberose, 12 blooms ..	0	6	1	0
Lily of the Valley, 12 sprays,					Tulips, dozen blooms ..	0	6	1	6
per bunch	0	9	1	6	Violet Parme, per bunch ..	3	0	4	0
Marguerites, 12 bunches ..	4	0	6	0	" per doz. bunches ..	1	6	2	0
Maidenhair Fern, per dozen					" (French), per dozen				
bunches	4	0	8	0	bunches	1	6	2	6



ECONOMY WITH EFFICIENCY.

SEED time and harvest so far have never failed us; the primeval curse of thorns and thistles is still as potent as ever. Still, it is only by the sweat of the brow that necessary food is produced and there is no hope of things ever being different.

Soil must be turned to expose it to the genial influences of sun, rain, and frost; soil must be worked to rid it of noisome weed that would otherwise unchecked interfere with the growth of the infant plant, if not annihilate it altogether. The "grand old gardener," our first father, would have an implement of the simplest construction. How long manual labour alone was employed we do not know, but certainly at a very early period of the world's history the patient ox and ass were pressed into man's service, and some rude likeness of our present plough used. How rude, those who have travelled even to-day in the East can testify.

Nature is not so beneficent to us Western agriculturists, and it

is only by using the best implements at our disposal that we can effectually cope with her in her many moods.

There are some who would say "Good bye" to the plough. We have got rid of many implements used by our forefathers. To the modern child flail, sickle, and scythe are unknown tools met with only in the verse of the poet, but we think he would be a brave man who dare relegate the plough to the land of dreams alone. That there is a need for some reformation in the use of this implement is apparent. The profits of farming are so small that all possible economy must be exercised in every department. The labour bill has to be curtailed, and this must be done very judiciously, or it will prove but short-sighted policy, and in face of this shorter hours and larger wages are being demanded.

Horse keep is expensive, and horses cannot be kept for show; indeed it is questionable as to whether we employ the right kind of horse. Thoroughbred Shires, with their handsome proportions and slow and stately walk, are very ornamental, but is it not possible that their walk may be too slow, and the keeping of them in prime condition too expensive?

Granted that at five or six years old there is a ready sale for them for town purposes, would not a lighter horse do twice the work and be equally saleable? Of course this does not apply to those farmers who grow Shires as part of their rent makers—we mean those men whose reputation is made by the pure blood and grand constitution of their horses. We are speaking of the farmer who needs horses for everyday work, and plenty of it; who needs horses that can get over the ground quickly, and will not educate the men to majestic slowness of movement. Nothing spoils a good man more than a slow moving team, and how to get the work done quickly and thoroughly is the problem before us.

Men cried, "Eureka!" when the first of the large family of cultivators was introduced. Now was to be the golden age of agriculture; now no more foul land; now no more sweating horses; but, alas! the cultivator, though good in its way, did not fulfil the hopes of its advocates. Back they went to the old forsaken plough. True, the plough was undergoing many modifications, but still in principle it is the same. We must plough; how are we to do it in the best way and at the same time in the cheapest?

To begin with, we find ourselves confronted with two entirely different styles of ploughing. There is the deep winter ploughing, and the lighter work done in the spring, summer and autumn; and the celerity of the spring ploughing is often the greatest factor that goes to make the good crop. Now, as the two kinds of ploughing differ so materially—i.e., in depth—it is fair to ask, Do the ploughs differ in construction as much as they might, or do they differ at all?

The question of deep ploughing has long been before the public. On strong land it has been considered a necessity. Certainly it is the most expensive process in all the routine of farming. Given that it is necessary to deeply plough strong land, does it pay? It might when Wheat was 60s. per quarter; but now, at present prices and all things considered, would it not be better laid down to grass or planted?

Then as to medium land for Potato cultivation and ley land cleaning, it must be done to a certain extent; but we have many authorities on our side who agree that the crops are quite as good, if not better, with the shallower ploughing. Weeds are often buried only to be brought up again at great expense, and soil exposed that would have been better where it was—i.e., deep down.

An ordinary single-furrow plough and a pair of horses will turn over $1\frac{1}{2}$ acre per day; a lighter three-furrow plough with three quick-stepping horses ought and will plough 3 acres per day, and make a good job of it. The slowness of the team may be sometimes only the reflection of the slowness of the man; in fact, we once had a man whose sole object in life seemed to be to educate his horses to go as slowly as compatible with movement at all.

More power is got from horses by yoking them three abreast,

rather than in single file. Single file we never see in the north, and we fancy we do know how to economise labour. We do away with the boy, say at 10d. per day (further north it is 1s.), who leads the first horse.

For those who prefer the single furrow, there is no better plough than the chilled plough; it is lighter in draught and more efficacious in work than the old English pattern, and that it is a very useful implement is fully proved by the enormous numbers now in use. One great advantage of the chilled plough is that it leaves the land very light, so that one harrowing is generally sufficient before drilling, and what this means is fully comprehended by the farmer, who in spring has a large acreage to sow and very little time to do it in.

Far be it for us to urge a great multiplicity of implements on a farm, but it must be conceded that, to speak roughly, fine and coarse work cannot be done effectually by one and the same tool.

WORK ON THE HOME FARM.

Rain and fog are the principal features of the weather, and the land is as wet as ever. We are ploughing lea land for Oats, and though it is in a high and dry situation, and anything but of a strong nature, it turns up very wet and greasy. The plain fact is that the rain has no time to get away before more comes. The land ploughs well enough, but unless we have some sharp frosts the seed bed will be a stiff one.

We are hoping for a fine February. The seasons are now turned so topsy-turvy that February fill-dyke may belie its name, and give us the dry spell we so badly need. It is time to be crossing fallows, but it is of no use beginning until drier conditions prevail.

Manure is all led, so we have a chance to clear away refuse heaps and road scrapings. The latter are very beneficial to grass, and do the most good on places where the herbage is coarse, so that stock eat it badly.

We hear of serious losses amongst horses lying out, and they should be closely watched, so that if they are going wrong it may be detected in time. We know a farmer who had twenty-five young horses lying out, of which he has already lost six, and he fears more may die. The loss is attributed to wet lair, combined with insufficient food. Horses have been successfully wintered on the same land before, but it was not so wet, and the grass had more nature in it. We have heard of several other cases, and no doubt the season is chiefly to blame.

Turnips seem to be a little more plentiful, at least in this district, though we met a farmer the other day who already has his ewes on Mangolds, and he has more than 1000 of them. Fat ewes are coming to market very freely, and there are several sellers of Hoggs, so roots are not too plentiful with them.

Wheat grows well, and we have almost finished tenting; larks have pulled some up, but there is plenty left.

The young Clover is encouraged by the mildness of the season to commence growth, a fact quickly noted by the woodpigeons which are hovering about in large flocks. They will receive attention from the breechloader as usual. Only those who have seen it can realise the amount of damage these birds can effect.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1897. January.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 10	29.617	42.8	42.8	Calm.	40.0	47.0	35.4	51.2	35.2	0.064
Monday .. 11	29.722	38.3	38.2	N.	40.8	40.3	37.2	41.0	37.2	—
Tuesday .. 12	29.743	40.1	39.2	N.	40.1	41.2	37.6	42.9	37.1	—
Wednesday 13	29.847	37.2	36.9	N.E.	40.0	40.2	36.8	45.0	35.9	0.010
Thursday .. 14	30.169	37.9	36.9	N.	39.7	41.0	36.7	50.1	31.9	—
Friday .. 15	30.122	33.7	33.2	N.	38.3	40.0	33.3	56.2	29.0	—
Saturday .. 16	29.998	33.2	31.4	N.	37.7	34.4	29.9	37.3	24.9	0.113
	29.890	37.6	36.8		39.5	40.6	35.1	46.2	33.0	0.187

REMARKS.

10th.—Dull and overcast, rain at 3 P.M., and slight fog in evening.
11th.—Dark, dull, and damp air all day.
12th.—Dark and dull, and overcast all day.
13th.—Overcast morning, fair about noon, then no sun rest of day.
14th.—Overcast early and at 9 A.M.; fair morning; bright sun at 1.30; overcast at 3 P.M., but fair after; rain in evening, about 7 P.M.; fine night.
15th.—Fair early and at 9 A.M.; bright sun at 10.45, and bright rest of day; fine night.
16th.—Fair early and at 9 A.M., and all the morning; snow at 6.45 to 1.30 A.M. (17th).
Another average week, with little sun.—G. J. SYMONS.

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237, 238, & 97, HIGH HOLBORN,
LONDON, W.C.



Journal of Horticulture.

THURSDAY, JANUARY 23, 1897.

TREE PLANTING.

THE DUTY OF ONE GENERATION TO ANOTHER

THERE is some little danger in our day, perhaps, under the pressing exigencies of the present with the ardent desire for immediate effect or quick results, to overlook in at least one phase of our work a duty to the future generation. Truly it may not be so to an alarming extent, but sufficiently so, I think, to make the matter worthy of consideration. Under the shallow reasoning advanced by a politician that posterity having done nothing for us therefore possesses no claims upon our attention, the matter might be summarily dismissed; but being as we are the posterity of a past generation, and tacitly acknowledging the debt which in the enjoyment of its well-planned work is incurred by us, the responsibility is not thus to be comfortably disposed of.

Gardeners of to-day are not as a rule, I fear, so well skilled in arboriculture as its importance deserves and demands, and when considering the manifold things that modern society requires at their hands, it is not a matter for surprise that it is so. We admit, of course, that in the spacious surroundings of "the stately homes" shortcomings in this respect are few and far between; yet even here sufficient evidence may be found to point a moral, for in some of them at least crippled resources, whilst not shutting from view the duty to futurity, cause it to be carried out in a hurried or perfunctory manner. Such work, too, is often entrusted to a man—a capable general manager may be—having charge of all in the demesne outside the garden proper, but one whose knowledge of our subject may be very limited, and who relegates the duty of planting to a few labourers, who know as little and care less. Anyway, such is my experience from observation.

One demesne, whose owner was as anxious to do for his descendants as much as his ancestors had done for him, provides an illustration to this point of the text. Here amongst the "tall ancestral trees" some superb Cedars of Lebanon were a feature, and it was this worthy proprietor's express desire that his farm bailiff, who superintended the keeping of the demesne, should

plant more Cedars in suitable positions. This was done several years in succession, but ill done, all but total failure resulting. The cause was not far to seek, for although good plants were procured (too good in fact), and in good time, they were "heeled in" to be at the last moment stuck, not planted, in their positions and stuck there to die. I was present when the matter was broached between the two most interested persons, and standing within 50 yards of one of those superb specimens previously mentioned; the reply to the query as to the failure of the young trees was, "Oh, the soil is not suitable." One could not but pity the man whose only resource to excuse shiftless planting was so palpably absurd, and the rapid look of his employer from the grand old Cedar to me revealed the thought, not otherwise expressed, which was in his mind.

Thriving trees must ever be a source of pride to the planter, as they may eventually prove to be the most enduring monuments of his forethought and good work. One fails to see how anyone whose cultivated taste begets the full enjoyment of noble trees can overlook the duty of one generation to another, either in judicious planting or in the preservation of venerable relics of the past. I could point to a dozen places, of some pretensions too, where future arboreal effect is entirely ignored in the passive enjoyment of the present, or the question is indefinitely postponed under the compound pressure so few places have escaped. Others there are in which a desire for novelty has led to the planting of many of the more recently introduced Coniferae, which must be regarded to more or less extent as experimental, but which have monopolised attention to the exclusion of equally worthy and more reliable objects of our solicitude.

Some trees in their infancy resemble children, in so far as that character is concerned with which we imbue the latter when remarking that plain features often develop later charms, or *vice versa*. Many who admit this so far as our own species are concerned appear to be led astray by the infantile beauty characterising some trees of modern introduction. What a gay deceiver is *Cedrus Deodara* in its graceful and elegant youth! It is and has been planted in prominent situations with the object of becoming a permanent feature when its noble cousin, *C. Libani*, would under normal conditions yield unqualified satisfaction. As an ornamental plant, up to a certain stage the Deodar has few equals, and probably none that can surpass it in beauty; but after a certain stage (not age, of that more anon) its glory has departed, and there is not, I fear, anything remaining to make it worthy of our consideration as a permanent object. From a timber point of view its commercial value is not, probably, great, and its character as a factor on this account is doubtful. It was, I am aware, awarded high meed of praise some few decades ago by very competent authorities on Coniferae, but I do not know of any instance in which those expectations have been, or are likely to be, realised.

In a sheltered glen where a collection of choice Coniferae have developed into good specimens (a good specimen is not necessarily a thing of beauty) a Deodar which has thriven remarkably well so far as thriving goes is in its appearance the one black sheep of the flock. Lately a gentleman, certainly uninitiated in woodcraft, and to whom I was expatiating on the subject whilst pointing out the specimens, admired them very much, but said, "Why did they plant that ugly Fir tree in so prominent a place?" Alas! for the departed glory of *Cedrus Deodara*, which was the tree in question. Very probably admirable specimens of this Cedar exist that I am unaware of, and very probably, too, if such is the case, they are to be found where unremitting attention to top-dressing has contributed to the preservation of that unique feathery gracefulness marking their distinguished youth. Biennial pruning to keep the Deodar within limited bounds will, I believe, accomplish the object of retaining it as an ornamental tree practically irrespective of age.

Noting the splendid effects that are obtained by liberal and

frequent top-dressing and other extraordinary attentions paid (and worthily paid) to various trees, we can only conclude that the practice is highly commendable. Yet this is but a side-light of that broad view the subject demands. There are but few, if any, places where the practice obtains beyond the pinetum or other limited area, and it would be presumptuous to predict in the mutable conditions under which we live that such benefits may be continued far enough to reach another generation. All honour to a generous-hearted patroness of horticulture and arboriculture of a past generation, who gathered about her delightful home the good and beautiful of tree life from many lands; yet her estimable qualities were rather those of the heart than of the head is now sadly in evidence. It is painful to see where so much was attempted the many silent witnesses still standing to point a moral, obvious enough to the most casual observer, of mistaken enterprise and enthusiasm; and in looking at what is, the context of what might have been is not less apparent. For instance, the well-formed sweeping avenue of *Araucarias*, many sickly, struggling survivors, of which more pitifully tell the tale than any words of mine could, force such invidious comparisons upon one's mind. Probably if a little more thought was given to the matter the somewhat narrow view of our own allotted span would be merged into the subject of our text—the life of a noble tree from infancy to prime and on to its undimmed glory of venerable age.

It is for gardeners to consider this phase of the subject. On the larger scale, or in its commercial aspect, it may well be left to the skilled forester. Gardeners, too, are in this matter a power for good if they will give the subject a place in their hearts among their pet *Chrysanthemums*, *Roses*, or other deserving if often all-engrossing objects of their care. And gardeners, too, are a power for evil if, when compelled by duty to give some attention to the matter, they only give as little as possible ere hurrying back to their hobbies for fear of some coveted trophy in competition going astray. The subject is a noble one, and provides a theme which might well be extended. It is not intended to do so now; later on some thoughts on tree pruning may be expressed. In commencing this paper its object was specified; in concluding it I may be permitted to lay down a few broad lines capable of being stretched to suit all cases, but which should never be lost sight of.

Consider why you should plant, what you will plant, how you will plant, and where you will plant. These simple points are worth all the consideration that can possibly be given to them. In handling the infant tree grasp all the possibilities of futurity as a guide to ultimate space required. If as a single specimen, think of "The grandeur of the lonely tree that wrestles singly with the gale." In grouping, how many incongruities have been perpetrated by the planter in his desire for unlimited variety within limited space! There may be beautiful and desirable trees among them,

"But more majestic far they stand when side by side their ranks they form,
To wave on high their plumes of green, and fight their battles with the storm."

—SYLVA.



ZYGOCOLAX VEITCHII.

THIS, "Junior," is one of the most interesting bigeneric hybrids, and it was introduced in 1893. It is the result of a cross between *Colax jugosus* and *Zogopetalum Mackayi* var. *crinitum*, the former being the pollen and the latter the seed parent. It is undoubtedly one of the happiest of the Veitchian hybridiser's efforts in the inter-crossing of Orchids, the blending of the characters of the two plants being effected in a most pleasing and harmonious manner. The form of the flower is accurately portrayed by the engraving (fig. 19); it will suffice, therefore, to describe the colouring. The

sepals and petals are pale greenish yellow blotched with chocolate. The short, nearly flat, and very broad lip is pale lilac veined with rosy purple and margined with the same colour. The habit is dwarf, the pseudo-bulbs short and blunt, the leaves, as shown, long and narrow. There is a strong suggestion of the *Zygopetalum* parentage about the hybrid, but it is, as it were, modified and toned down, the contour of the flower being improved by the "Colax blood." In every respect *Zygocolax Veitchi* is a beautiful and charming Orchid, and a distinct triumph of the hybridiser.

SACCOLABIUM GIGANTEUM.

THIS is the brightest and most effective of all the distichous-leaved section, flowering during winter, and an Orchid worthy a place in the most select collections. Its great fleshy leaves and apparently vigorous habit hold out hopes of a robust and healthy constitution, which unfortunately it does not possess. Newly imported plants, it is true, are easily established, and for the first few seasons no fault can be found with its behaviour; but, as a rule, after this time a backward tendency becomes apparent that is difficult indeed to resist. Often the plants will go on well until it becomes necessary to give them new material at the roots, then when they are once disturbed it is difficult to get them to take a good hold on the new material.

The symptoms of this unsatisfactory state vary somewhat in individual plants, but as a rule the foliage begins to shrivel considerably, gets loose at the axils, and eventually drops off, lessening the size of the plant, and of course in a like measure its vigour. This is occasionally the result, too, of allowing weaker or unestablished specimens to flower freely, their blooming season being, as before mentioned, the middle of winter, when the energies of the plant are at their lowest ebb. But this alone would not cause so many fine plants to be lost annually, and the secret really lies in our artificial atmosphere. Too many Orchid houses are built nowadays very narrow and low, and admirable as these are for a great many Orchids, they are not quite the thing for this class, which above all others need plenty of head and elbow room.

Given a large roomy structure, where the plants may be arranged at least a yard from the glass, and where owing to the capacity of the house the atmosphere is not liable to sudden alternations of drought and moisture, these plants are far more likely to be satisfactory than in the class of house aforesaid. I have an idea, too, that the proximity of larger specimens of vegetation, such as big Palms, Tree Ferns, Musas, and other things frequently seen in large stove conservatories, is helpful in providing the right kind of atmosphere, and certainly the broken light coming between the foliage of such plants is better than that caused by the close shading practised in Orchid houses generally.

As a rule, this class of house is not at command, and growers must do the best they can with those they have. Provide them an atmosphere quickened by plenty of heat, yet not stuffy, and let air and moisture be as nicely balanced as outside conditions will allow. Shade as little as possible, but never allow the foliage to feel hot to the touch of a person in the same house. This must be kept up the whole year round, for *S. giganteum* is a restless species, and is frequently in growth again almost before the flowers are past. If they seem inclined to rest awhile do not try to force them into growth; but, on the other hand, when once root action commences a deal of harm may be done if any attempt to check this is made.

Imported plants usually arrive in fairly good order, and in many cases they may be potted up at once in clean crocks, or placed in baskets in the same material if these are preferred. Roots will be emitted in due course, and when these are seen to be starting lay a surfacing of sphagnum moss over the crocks, this protecting the young roots and husbanding the moisture. In a warm house they will require frequent watering, and owing to the nature of the material the roots are not in the least likely to be surfeited with ordinary care. Should the plants, on the other hand, be much shrivelled when they arrive, suspend them upside down in a warm moist house until they are plumped up, and ready to pot as described.

Established plants, as mentioned above, dislike disturbance at the roots, but if it becomes really necessary it must be gone about in a careful and judicious manner. The best time to repot is after the flowers are past, and just as the plants commence to grow, they being allowed a little more warmth afterwards, and carefully watered. I have advised the use of pots, as I believe the roots of all distichous species have a great liking for the hard, yet porous earthenware, but they should in all cases be suspended if convenient. They must never hang direct from a rafter unless this is provided with a drip groove, for cold drops in the centre of the plant at midwinter will kill it as surely as if it was exposed to frost.—H. R. R.

NOTES FROM THE RIVIERA.

HAVING spent a period of twelve months in this charming part of the Continent, perhaps a few notes made during my sojourn there may be of some interest to readers of the Journal. The chief towns in the Riviera—Nice, Cannes, Monaco, and Mentone—are all well-known winter resorts, the population of which during this season is almost doubled by the influx of visitors. A large number of these are English, who no doubt are very glad to be able to leave their foggy island home for the almost unbroken sunshine of the South of France. It is seldom that much frost is experienced, 4° or 5° Fahr. being the most registered in ordinary seasons. The winter of 1894 was exceptionally severe. We then had as many as 12° of frost and a heavy fall of snow, which did a great deal of damage to the vegetation of the gardens. The summer is hot and dry; sometimes the thermometer in the shade reaches 100° Fahr. Little if any rain falls from the end of April to the beginning of October. The scenery of the Riviera is most charming; indeed, Monte Carlo has been described as the "most

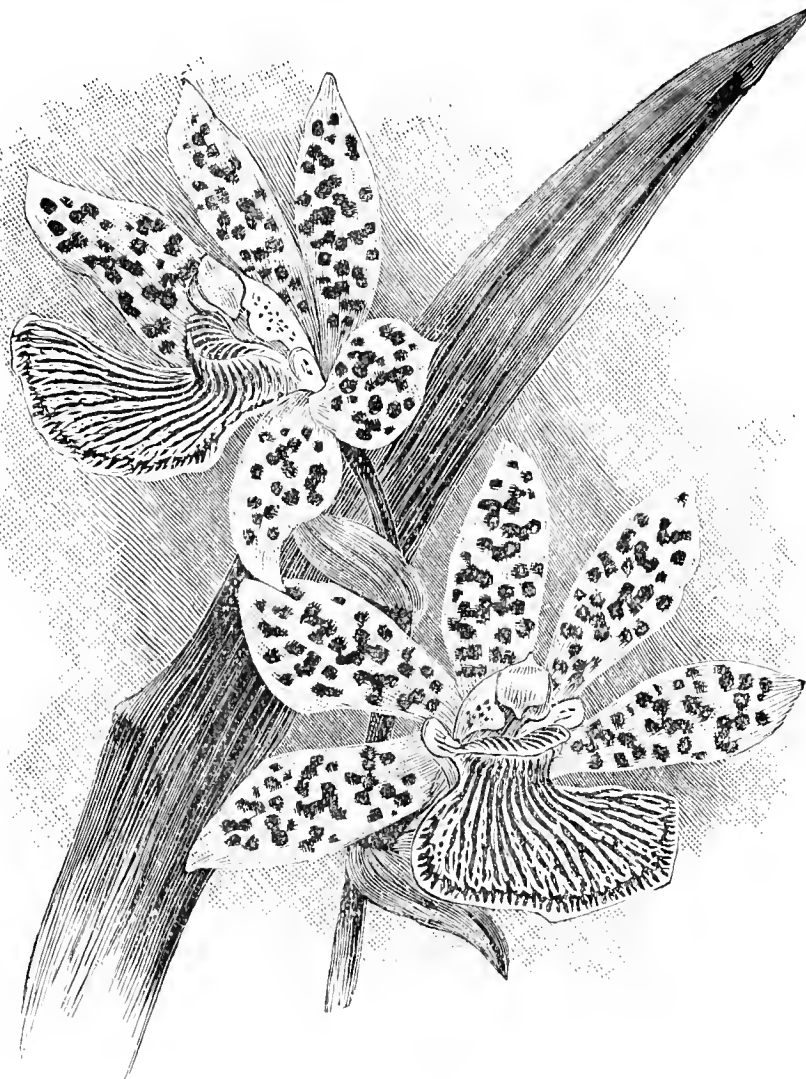


FIG. 19.—ZYGOCOLAX VEITCHI.

beautiful spot on earth." All the previously mentioned towns have a fine situation, and each is well sheltered on the north by the Eslerel Mountains, running parallel with the sea coast. Nestling on their well-wooded slopes, with the blue Mediterranean stretching away in front and a cloudless sky above, these towns present an ideal picture.

Without further enlarging upon the beauty of this neighbourhood, I will turn for a short time to its horticultural aspect. The commonest trees which flourish here are the Pine, Olive, Orange, Eucalyptus, Plane, and Acacia. The Olive tree is very useful, for besides withstanding well the summer drought, it seldom fails to yield a large crop of fruit, chiefly used for making oil. Cooked Olives are also largely consumed by the French and Italians. The under side of the leaves of the Olive is much lighter than the upper surface, in fact almost white, and in a rough wind the constant changing of colour produces a pretty undulating effect. The Eucalyptus (*E. globulus*) attains a great height, almost as high as our English Elms, but although a handsome tree it is not a favourite with gardeners here, as its strong roots travel a long distance, and deprive the soil of much nourishment. I have seen instances where nothing would grow within many yards of this tree. The Plane (*Platanus orientalis*) is largely used for planting avenues and boulevards in towns, where its shade is very acceptable during the hot summer days. Both at Nice and Cannes there are splendid avenues.

I think one of the prettiest sights to be seen here in the months

of January and February is the Acacia in flower. The trees are literally a mass of yellow, and seen in the bright sunshine the effect is not likely to be forgotten. Groves of Orange trees are usually planted on terraces formed in the hill sides, as unless this were done, of course there would be no means of watering them in the dry weather. Large quantities of the blossom are gathered every spring, and sent to Grasse, there to be used for making scent, the fruits being picked in the autumn and sent to market. There are two species of Pine indigenous to this district, *P. maritima* and *P. pinea*. The former grows abundantly on the rocky ground by the seashore. The Umbrella Pine, as *P. pinea* is called, from its resemblance in shape to that useful article, is more rarely met with. The gardens of the Riviera are not at all ancient, most of them having been made within the last forty or fifty years. Indeed, before that time this shore of the Mediterranean as a winter resort was only in its infancy, and the towns that have since sprung up were nothing but mere villages.

Although of comparatively recent formation, these gardens have now both beautiful and varied vegetation, quite tropical in character. Palms of various kinds are the principal decorative plants employed, and some of these have grown into veritable giants. *Phoenix canariensis*, *dactylifera* and *reclinata*; *Cocos plumosa* and *australis*, *Chamerops excelsa*, *Pritchardia filifera*, *Sabal Blackburneana* and *umbraculifera*, *Jubea spectabilis*, and *Cycas revoluta* are found in most gardens. Bamboos grow freely, and form magnificent clumps, 30 to 40 feet high. *Aralia Sieboldi*, *Dracenas*, *Yuccas*, *Agaves*, and *Camellias* are common objects in every garden. The *Agaves* are generally planted in bold groups amongst rockwork, as this situation shows them off well. The principal varieties are *A. ferox americana*, *A. variegata*, *applanata*, and *Salmiana*. *Magnolia grandiflora* grows quite 60 feet high, and when in flower is a beautiful sight. *Acacias dealbata*, *cyano-phylla*, *cultriformis*, and *longifolia* are also generally cultivated.

The routine work in the Riviera is very different from that followed in our English gardens. In April, when all visitors have returned northwards, the lawns are dug roughly over with a spade, in which state they are left all through the summer and have almost the appearance of ploughed fields. It is quite necessary, however, to treat them in this fashion, as the grass would be completely burnt up by the hot sun. In October they are levelled and resown. It reminds one forcibly of spring time in England to see the green blades of grass appearing above ground, and the freshness of the surrounding vegetation after the rains also helps to convey the same idea. The newly sown lawns are often damaged and sometimes partly washed away by the heavy autumn rains. Every garden is provided with stone gutters by the sides of the walks, but even these are often insufficient to carry off the water quickly enough.

From November to April the flower beds are gay with flowering plants and bulbs. For this purpose quantities of *Cinerarias*, *Primulas*, *Daisies*, and *Pansies* are grown from seed every year. *Anemones*, *Hyacinths*, *Tulips*, *Ranunculus*, and *Freesias* are planted in beds covered with white moss, which is found on the neighbouring hills. The moss serves as a background for the flowers, and greatly enhances their beauty. *Carnations*, *Violets*, *Salvias*, *Stocks*, *Pyrethrums*, and *Solanums* are also used for bedding out. *Roses* are in full bloom in the early months of the year. They are generally grown as bushes. *Marie Van Houtte*, *Général Jacqueminot*, *Perle des Jardins*, *Safrano*, *Paul Nabonnand*, and *La France* are well-known varieties here. The *Banksian Roses* are generally covered with blossoms; they flower rather earlier in the season.

I cannot omit to mention the hardy (in this district) creepers, which to my mind are a feature of the Riviera gardens. Almost all the villas are covered with some of these plants. *Bougainvillea spectabilis* is, I think, employed more than any other. Its flowers are of a deep red colour, and open in January. Our old favourite *Wistaria sinensis*, *Kennedya ovata*, *Cobaea scandens*, *Tecoma Smithi*, *Bignonia Tweediana*, *Solanum jasminoides*, *Plumbago capensis*, *Lotus peliorhyncus*, and others. All these flower in the sunny south during our dark and dreary winter.

I should like, in conclusion, to mention a few of the most notable gardens in this part of France. At Grasse, a town several miles inland from Cannes, Baroness Alice Rothschild has a large well-kept domain. It is situated on the side of a steep, high hill, which is gradually being transformed into an Alpine garden, and, I am sure a more ideal place for this purpose could not be wished for. Palms do not grow so well here, perhaps on account of the very cold winds sometimes experienced. Cannes contains many fine establishments, including that of Lord Brougham, famous for its splendid Rose bushes, one of which, *Marie Van Houtte*, is about 15 feet high, and the same in diameter. Baron Alp. Rothschild's winter residence is also at Cannes. To furnish the flower garden, quite 50,000 bulbs, *Hyacinths*, *Tulips*, *Anemones*, *Ranunculus*, and others are grown. The garden at Villa Valetta is one of the oldest on

this coast. It has some very good specimens of Palms, and several nice Tree Ferns, but these are often caught by the frost. Antibes is the home of the Riviera nurserymen. Here Messrs. Vilmorin have large seed grounds for the cultivation of such plants as *Cannas*, *Begonias*, and *Primulas*. The Antibes Botanical Garden is interesting. It has good collections of Palms, Conifers, *Eucalyptus*, *Callistemons*, and various other kinds. There is a tree of *Jubea spectabilis* here, believed to be the largest in Europe, but I do not know its measurement. The Casino gardens at Monte Carlo are very beautiful. They contain unusually fine trees of *Ficus macrophylla*, almost the size of our Chestnut trees.

Just across the Italian frontier is the well-known garden of Mr. Hanbury. Many plants do well here that will not thrive farther west, as *Kentias*, for instance, which grow outside without protection. The *Agaves* and *Aloes* are remarkably fine; *Grevillea robusta*, *Callicarpa purpurea*, *Streptosolon Jamesoni*, *Bignonias*, *Ericas*, *Acacias*, all add to the beauty of this wonderful garden. But we have now entered foreign territory, so my wandering pen must be recalled, and bidden cease its labours.—H. H.

[A pen of promise as guided by the young gardener behind it, and should not rest from its labours too long.]

A GARDEN IN THE ISLE OF WIGHT.

[An Address (amplified) by Rev. H. EWBANK to the members of the Horticultural Association at Newport.]

(Continued from page 58.)

THE first flower in the year about which I would say a word is a very humble one—*Eranthis hyemalis* (the Winter Aconite); it might almost be called the last flower, for where it is grown in quantity it is sure to put in an appearance before the old year has closed. *Eranthis hyemalis* has a place for me in the garden of memories. An old uncle in Yorkshire, who taught me to garden more than fifty years ago, used always to say that the Winter Aconite never failed him on the last day of the year, and I say just the same thing now in the Isle of Wight. This little flower carries me back more than anything else I have to the days of my boyhood. It will grow anywhere—in the open or under trees—and it soon comes to make a veritable cloth of gold, and is so bright and cheerful that I would not be without it on any account. There is a new one which has lately been introduced from Asia Minor, and of which I have two or three good clumps, owing to the kindness of Mr. Whittall of Smyrna, but though I am very glad to possess it I think I shall prefer my old friend, for I am told that *Eranthis cilicica*, which resembles *E. hyemalis* in all respects save one, blossoms at quite a different time of the year; and this cheery little plant must always want a background of winter, which it enlivens so well.

The next flower is one which cannot be too highly recommended, but which, so far as my experience goes, is not often seen. I refer to *Cyclamen Coum*, which blossoms in the dead of the winter, coming up very often through ice and snow, and laughing the cold to scorn. It may be either red, pink, or white, and it seems so lively when all around is drear and desolate in the extreme. I have seen persons jump when they came across the patches of red on my rockery for the first time, and found some colour in the garden when they had looked for none. *Cyclamen Coum* comes from the South of Europe, and is very easily grown. It is not so large as *Cyclamen europæum*, and has round leaves, which differ from those of the other sorts. In the earlier stages of growth they are quite red underneath, which afterwards turns to green. In the case of other *Cyclamens* the leaves come from the centre of the plant and bend gracefully to the ground at the side, while the flowers, each mounted on a stout single rootstalk, stand up above the foliage, and form a perfect bouquet of beauty over the corm. It is rather different from this with *Cyclamen Coum*, the leafstalks or petioles are very short as well as weak, so that the leaves often lie on the ground rather than rise up. The corolla is also short and somewhat constricted at the mouth, where there is generally a white circle around it. This *Cyclamen*, like *Eranthis hyemalis*, will grow anywhere, either in sun or shade. It is fond of leaf mould and old mortar, but it is by no means exacting about it, and when once it has taken possession of the ground it multiplies itself with extraordinary rapidity, and has a great progeny of its own. The late Mr. Atkins of Painswick was a great cultivator of *Cyclamens*, and the varieties which bear his name are rather larger than the type, and are an improvement on it. His idea was that the tuber should in all cases be just buried beneath the surface of the earth.

The *Cyclamen* has a curious habit, from which beyond a doubt it takes its name, "of forming its seed vessel after flowering, which then hangs down, and by a succession of coils of the flower stem is brought to the ground and there buried." It belongs to the Primrose family, but this very strange performance is quite peculiar to it. In Parkinson's "Paradise" it is always made to bear the name of Sowbread, but why it should be so is not clear. It can scarcely be because swine are devoted to it, for Canon Ellacombe tells us in his "Notes in a Gloucestershire Garden" that on one occasion some pigs made an inroad into his garden, but they turned up their noses at a large spread of Sowbread, and turned them into other things by preference to it. The colour of *Cyclamen Coum* is so good, the time of year at which it blossoms is so drear, it has such a nice way about it, that if I had a garden which is no bigger than a pocket-handkerchief I would grow these *Cyclamens* in one corner of it.

The companion of Cyclamen Coum is the Snowdrop; it blossoms at the same time, and no words of mine are needed in its praise. It has many pretty names—and some of them are very expressive—but none are better or so good as its familiar English name. It seems to have been described as the "bulbous Violet" towards the close of the seventeenth century, but that is an unsuitable appellation. The "Snow-piercer" of the French is a much better name. The "Milk Flower" of the Germans might have done, but the best of all names is Snowdrop, because it exactly expresses what the flower seems to be. Mrs. Barbauld must have thought of this when she wrote—

"As Flora's breath by some transforming power
Had changed an icicle into a flower."

It has always been considered to be an emblem of consolation—a herald of hope—but that can only apply to one or two particular species—e.g., *Galanthus nivalis*, which blossoms in midwinter; the others take very different times of the year—in the autumn and in the spring. Of the Snowdrop, however, that most of us know best, this may be said—

"Green hues of hope array us,
Our snowy bells must ring,
And low but sweetly chiming
The joyful tidings bring;
For theirs it is to utter—
Awake! behold the spring."

The above lines are quoted from Dr. Forbes Watson's essay and Sowerby's "British Botany."

Dr. Forbes Watson made a great study of the Snowdrop, and on his deathbed wrote a beautiful essay, of which I will quote to you a few lines. His great point is that the expressiveness of the Snowdrop depends on its double drop, and this comes from its belonging to the order of the Amaryllidaceæ and not to the Liliaceæ—which orders, however, are to the eye, except in this one respect, very much alike. His words are these:—"Suppose that the Snowdrop had been a Liliaceous instead of an Amaryllidaceous plant, its whole significance would have been changed. The two orders so nearly resemble each other that no visible change would be needed except one—that the green drop-like ovary would be contained within the corolla instead of being outside it, and thus the form of the double drop would be lost, for the corolla would spring directly from the flower stalk. We may notice also," he says, "when the flower is closed and the fitness of the name most manifestly seen, how the white corolla—so narrow where it leaves the ovary—lets its fulness run down into the tip so as to give the form of a dewdrop just parting from the stalk which bears it."

These seem to me most beautiful reflections, and which would have occurred only to a very cultivated mind. *Galanthus nivalis*, as you know, will grow anywhere, but some of the other species are very troublesome indeed. *Galanthus octobrensis* was discovered by Lord Walsingham when he was hunting in Albania, and he introduced it into cultivation. As its name imports it blossoms in October, and *G. præcox* or *coreyrensis* comes even before that. *G. Redoutei* or *latifolius* is one of the last to blossom; its broad strap-shaped leaves are not glaucous, but of a deep green colour; it winds up the series in March, so that it is very possible to have Snowdrops with us for nearly six months in the year. The Snowdrop specialist of the present day is Mr. James Allen of Shepton Mallet. He is a great friend of mine, and I have often tried to pick his brains. He has given me some varieties of his own selection which are extraordinarily lovely. He says that from some reason or other Snowdrops do best when they are planted among the roots of trees, and I almost think that it is so. I have a new Snowdrop—*Galanthus Fosteri*—which is coming up now in quantity under the shade of a large Elm, and I find it much more amenable to reason than had been previously the case. The roots of the tree seem in some way to ventilate the soil and to keep it sweet, and at any rate *Galanthus Fosteri*—which is reputedly a very difficult plant to manage—is quite at home there. It may be added that this Snowdrop has leaves which are similar to those of *G. Redoutei*, and is a very fine one. I think that they should all be planted deeply in the ground, and then they should be left alone as much as possible. They seem to me to like a rich soil where leaf mould largely predominates, and under such circumstances as these they are sure to increase.

I have two curious little Snowdrops which are rather scarce—*G. flavescens* and *G. lutescens*. They are unlike their congeners in having a yellow ovary, and they are said in some way to differ from each other, but what the difference is I do not see. *G. Sharlocki* is a perfect oddity, and looks like a Snowdrop which has gone out of its mind. The outside tips of each outer petal are green, the upper portions are white, and it has a two-leaved spathe which stands up in a most funny way on either side of the flower, and reminds me of Mr. Gladstone's shirt collars as they are represented in "Punch." In contradistinction to this strange apparition some mention should be made of *G. pucilliformis*, which is a form of *G. nivalis*, and perhaps the most perfectly shaped of all known Snowdrops. The inner segments of the corolla are elongated and close inwards, and its very beautiful form leaves nothing to be desired. The only drawback to this extremely pretty Snowdrop is that it has a very tender constitution. It has, alas! parted company with me, and its place knows it no more. Snowdrops seem to me to follow one of two patterns—they are globose and floppy like *G. Elwesii* or more pendent and refined like *G. Imperati*. There are several others beside those I have named. It should be added that my collection of Snowdrops has been very largely improved by Mr. Whittall's munificence. *G. Cassaba*, *G. Ikariæ*, and two or three more are very fine things, and are

already taking high rank as they become more known and better established in the ground.

The Christmas Rose—*Helleborus niger*—claims a word at my hands. It belongs to a genus which has about a dozen species, two of which—*H. foetidus* and *H. viridis*—are found in Great Britain. I have no particular difficulty with any of them, though I think they would be glad to have more shade in my garden. *H. niger* blossoms in midwinter, and is always welcome then, for it is pure white, and rivals the snow itself. There is a large farm for Christmas Roses near Bath, and they ought to be very profitable flowers, as coming in at the right time of the year. The Bath variety is a very good one, and much in request. *H. maximus* blossoms about a month or six weeks earlier, and is a very fine plant. It hails from Aberdeen.

I am very fond of *H. angustifolius*, which was highly prized by the late Mr. Brockbank, and I think all he said in its favour is borne out by facts. It is curious to read what Parkinson wrote more than 200 years ago about the true blacke Hellebor or Christmas flower, as he calls it. His words are these:—"The flowers have the most beautiful aspect, and at the time of flowering are most rare. The true blacke Hellebor, or Bearefoot as some would call it, hath many fair greene leaves rising from the roote, each of them standing on a thicke round fleshy stiffe greene stalke, about an handbreadth high from the ground, divided into seven, eight, or nine parts or leaves, and each of them nicked or dented from the middle of the leafe to the pointward on both sides, abiding all the winter, at which time the flowers rise up on such thicke stalks as the leaves stand in, every one by itself, without any leafe thereon, for most part consisting of five broad white leaves—like unto a great white single Rose—with many pale yellow thrums in the middle standing about a green head, which after groweth to have divers couds set together pointed at the ends like horns, &c., &c." Such was the description of our old favourite *Helleborus niger* before botany grew into a science, but I think it can be followed even at the present day.

It may be as well just to mention two or three other Hellebores which no garden should be without. *H. purpurascens* has large flowers, dove-coloured inside and out; it is one of the earliest to bloom, and is a native of Hungary. *H. orientalis*, from Greece, is very free indeed, and some of its varieties, such as *H. antiquorum* and *H. guttatus*, are of great value. *H. abschasicus*, from the Caucasus, is one of the parents of a large race of hybrids at Berlin, itself also being of merit. *H. colchicus* is of a deep bright plum colour, with sepals which are somewhat round and flat, and yellow stamens. It blossoms in March, and should find a welcome place with all lovers of flowers. *H. angustifolius* is more curious, I think, than beautiful. It comes from Corsica, and resembles a young Holly more than anything else. There are some two or three other species of merit which I have besides these. But I think this notice of Hellebores may be closed with just naming two acquisitions which came to me from Herr Max Leichtlin of Baden Baden. They are *H. lacteus* and *H. Madame Fourcade*. The former is of such a precocious disposition that it seems to be thinking of winter before the summer is closed, and the latter is admittedly a hybrid of the highest beauty and excellence.

(To be continued.)

CAULIFLOWERS.

To a large extent the uncertainty and inconvenience of wintering Cauliflowers in frames and pots for the early summer supplies is greatly minimised, and has become in many gardens a thing of the past. Nor is it at all necessary since the introduction of the early forcing varieties of this nutritious vegetable. Of course we do not from this section get large heads, but it is a well known fact that they are the size most prized for the table, as they can then be served whole, and it is certain they present a much more appetising appearance served thus than is the case when large heads have to be used, as dividing them for cooking is then unavoidable. For quality, too, they cannot be surpassed, and when one has to cater for a gentleman's table quality is not to be lightly thought of.

To produce really good heads the plants need liberal treatment from the commencement. Therefore the ground chosen for them must have a dressing of well-decayed manure, and be dug to a good depth, taking care to bury the manure well under. A pinch of seed should be sown in a pan towards the end of January, and placed in a cool vinery, where it will germinate, and the plants soon be large enough to transfer singly into pots or dibbled into boxes.

We prefer the latter, as we find the plants are less likely to suffer by want of water. If pots are used care must be exercised at the time of planting in making sure that the ball of earth is thoroughly moist, otherwise should a dry period follow much difficulty may be experienced in preventing flagging, and we may be certain that if the plants receive a check in any way the result will be premature heads, or to use a gardener's term—buttoning will ensue. Keep the plants moving slowly and surely. Care should be taken that they receive no checks when being hardened previous to their being planted out on a south border. The beginning of April is the most suitable time for this, but even then it is necessary to have protection of some kind at hand in case of emergencies.

To follow the early Snowball, Magnum Bonum, King of Cauliflowers, and Autumn Mammoth, as well as Veitch's Autumn Giant, will extend the supply so long as they are safe from frost. If the soil is of a strong loamy character, containing much humus, the distance of 3 feet between the plants will be fully occupied by the two last mentioned varieties.

The seeds for succession should be sown early in February, and when the plants are large enough pricked off in boxes and placed in a gentle heat. A vinery just started will be found a suitable place for them until they become well established, when they will be best moved to cooler quarters. Air may be freely admitted, and on favourable days the lights be removed altogether. After choosing a good open position and weather permitting, plant out about the middle of April, and in case of drought water freely. For a further succession sow in March and April on a south border.—C. FOSTER.

THE PROPOSED VICTORIA MEDAL.

I DO not envy the Council of the Royal Horticultural Society the duty it will undertake presently in being called upon to find recipients for the proposed Victoria medal. I assume at the outset that these medals will be in number limited. That necessitates all the greater discrimination in making the selection of the recipients. Perhaps there may be twenty, perhaps fifty. We have in horticulture numbers of men in all its various aspects, some well known, some not so, who are well worthy of the highest honours that can be bestowed on their profession. Every one of those not selected will feel aggrieved. If the larger number mentioned (fifty) be distributed, then the proposed honour cannot be of great value. We are not even informed whether the medal is to be gold, silver, or bronze. Why cannot this be stated, and the principle on which the medals are to be awarded notified?

In no case would it be a medal earned by special work and as a well merited prize. In such cases one medal only is given, and no one else in the world has its duplicate. That is a real honour that may be prized. If the Council of the R.H.S. had proposed something worthy of the object, the celebration of the attainment by Her Majesty of a complete reign of sixty years, in which all its Fellows and the horticultural world at large could have shared, then many would have heartily assisted.

I know in inditing this deprecatory epistle I am not in harmony with the Editor's expressed views, but even the Journal Jupiter may now think there is something to be said on the other side. Specially, however, do I note that he has much warmer commendation for the Gardeners' Benevolent proposal, which is a noble and a generous one. That proposal is very easy to understand, and more in accord with Her Majesty's wishes than the suggested medal.—A FELLOW OF THE R.H.S.

[We have many times said that we have not the least objection to publish what is not in accordance with our own views, so long as the objections are temperately advanced. In this case our correspondent states there are "numbers of persons worthy of the highest honours," yet goes on to say that in "no case would the medal be earned by special work!" Have not the members of the Council of the R.H.S. and diligent coadjutors on committees done something for horticulture? Have not well-known representatives of provincial horticulture affiliated with the Royal Horticultural Society done something? Is the Victoria medal "for valour" the less appreciated by men of war because there is more than one medal? Why, then, should men of peace, who have deserved distinction, regard lightly an honour which others deserve equally with themselves? It is to be expected that the Council of the R.H.S. has considered the question of appropriation, just the same as the Veitch Trustees consider to whom and for what the medals at their disposal are awarded. We have not the slightest hesitation in saying that in our belief our correspondent has done at least as much for the advancement of horticulture as have many of the recipients of those much-prized distinctions, and we are entitled to doubt if one were offered to our critical "Fellow" that he would raise any strong objection to its acceptance because others had been as worthy of it as himself. As to charitable institutions the "Journal Jupiter" will say this—namely, that he would like to see every recipient of the Victoria Medal for Horticulture give a guinea donation to the Gardeners' Royal Benevolent Institution, and if he had his way he would make that a condition of its bestowal, as a thank-offering that the Queen has been permitted to reign over us during the greatest period of the prosperity of our country. What does our "Fellow" say to that? Will he give a guinea if he gets a Victoria medal?]

SOLANUM MACROCARPUM.—For greenhouse decoration in winter this Solanum is certainly an acquisition. To grow it well seeds should be sown in February, and the young plants kept growing without a check until they are placed in their fruiting pots about the end of May. At the last potting, pots 7 inches in diameter should be used, and a compost such as is generally adopted for Chrysanthemums. After potting the plants should be stood outside and treated in a similar manner to Chrysanthemums. They will then make plants about 1½ or 2 feet in height by the same in diameter, each plant having five or six branches thickly covered with spines, and producing leaves 6 to 8 inches long by 3 in width. Flowering takes place in August, and on an average twenty to twenty-five fruits are set on each plant. When mature the fruits are from 3 to 4 inches in circumference, red in colour, resembling in shape small smooth-skinned Tomatoes. The fruits ripen about the end of September, and remain in good condition about four months, long after the leaves have fallen. The plants should be housed about the middle of September.—W. D.



NATIONAL CHRYSANTHEMUM SOCIETY.

A MEETING of the General Committee of this Society was held on Monday evening last at Anderton's Hotel, Fleet Street, when Mr. B. Wynne occupied the chair.

The minutes of the former meeting having been confirmed a question was asked concerning the definite fixture of the shows for 1897, and the Secretary replied that they would be as follows:—7th, 8th, and 9th September; 12th, 13th, and 14th October; 9th, 10th, and 11th November; and 7th, 8th, and 9th December. Notice of motion was given by Mr. Harman Payne to rescind the resolution to hold the Floral Committee meetings so late as three o'clock in the afternoon during the coming season. The same gentleman handed over to the Chairman the silver-gilt medal and diploma awarded to the N.C.S. for its exhibit of cut Chrysanthemums at the Ghent Show last November. A resolution was passed that the medal be photographed and a copy presented to every member who supplied blooms for this interesting exhibit; Mr. T. Bevan, the Chairman of the Floral Committee, to whom the credit of the exhibit was due, undertaking to distribute the photographs.

A vote was passed expressing the loss the Society had sustained in the death of Mr. W. Piercy of Forest Hill, the eminent specialist in early Chrysanthemums. During the present year the meetings of the General Committee will take place on 23rd August, 20th September, 25th October, 22nd November, and 13th December. The Floral Committee meetings will be held on 7th and 20th September; 12th and 25th October; 1st, 15th, 22nd, and 29th November; 7th and 13th December.

Of considerable interest was the reading of the report of the Committee specially appointed to discuss the classification of various disputed varieties. Among their decisions the following varieties will henceforth be classed as incurved proper—viz., Duchess of Fife, Golden Nugget, King of Orange, Ma Perfection, Miss L. D. Black, Miss Violet Foster, Miss Airdrie, The Egyptian, Triomphe d'Éve, and several more. This report will be printed for insertion in the new schedule, and will form an official supplement to the new catalogue. A vote of thanks was passed to the members of the Committee for their work, which was regarded with uniform satisfaction.

The Judges for the September, October, November, and December shows were appointed; those for the first named being Messrs. Rowbotham and G. Stevens; for October, Messrs. McHattie and J. Wright (Temple). The November show awards will be made by the following:—Plants, Messrs. Lyne and Prickett; incurved, Messrs. Moorman and C. Orchard; Japanese, Messrs. Geo. Gordon, C. Gibson, E. Beckett, and E. Molyneux; fruit, Messrs. Tegg and Reynolds; table decorations, Messrs. Wills and Wm. Marshall.

For their services to the Society Messrs. B. Wynne and T. W. Sanders were awarded silver-gilt medals, and Messrs. R. Ballantine, T. Bevan, and Williams bronze medals, all of the special Jubilee type. New members were elected, including Mr. H. de Vilmorin and Mr. H. Martinet of Paris, and the Dorking Chrysanthemum Society was admitted in affiliation.

CLASSIFICATION OF CHRYSANTHEMUMS.

ON page 5 of the Journal Mr. Molyneux brings into notice the old variety J. H. Runchman, stating that when properly cultivated it would be admissible in the incurved section. Undoubtedly it would prove a grand addition. There is yet another variety in Mons. Norman Davis, sent out by Mons. E. Calvat, but was classed by the Floral Committee as a Japanese incurved. After growing it I thought it one of the most charming incurved ever raised, and when staged by Messrs. Drover of Fareham in their winning stand of twelve incurved at the N.C.S. show in December the blooms were the most perfect in the exhibition. The colour was most pleasing, inside of the petals crimson, reverse old gold, without any sign of Japanese form whatever, forming a compact ball. There are many now on the market that lack such form sent out as incurved, and I with other growers would be very grateful for information from some of the N.C.S. Catalogue Committee regarding such varieties as Ma Perfection, Perle Dauphinoise, Duchess of Fife, Mons. Mailfai, and Miss P. Fowler.

J. S. Dibben, Creole, and Mrs. Smart have given me perfect incurved blooms on the terminal bud. Would these, with J. H. Runchman, be admissible in the incurved section?

The Egyptian, also on a late crown, has produced grand flowers with me, and quite equal in form to the old variety, Mrs. G. Rundle. I take the last named as a standard variety of form that our incurved should follow as nearly as possible. L'Améthiste and Percy Surman seem to me doubtful. The former I saw during the past season in two winning stands, one competitor staging it as an incurved, and the other as a Japanese. Percy Surman has been staged similarly at some of our largest exhibitions. Is it not time that such varieties as these were classed either as one or the other? If not I shall expect to see Modesto, and even George Savage or Olive Oclee, staged as incurved from late buds, they would make good back-row flowers in many stands.—W. G. ADAMS.

CHRYSANTHEMUM SPORTS.

MR. HENSLOW will be greatly obliged to cultivators of the Chrysanthemum if they will kindly inform him of any sports which they have had during the last two or three seasons, and to state the name of the parent plant as well as the colours of the flowers of both parent and sport; also to describe any special treatment the parents may have had. If they can suggest any other cause of the sport he will be glad to know of it.—*Drayton House, Ealing, London, W.*

A CHRYSANTHEMUM FREAK.

A FEW days ago, when going through the gardens at Nuneham Park, where a good collection of Chrysanthemums forms a striking feature throughout their season of flowering, Mr. Nichols, the head gardener, drew my attention to a very singular flowering sucker of the variety Louise.

From a plant grown in an 8-inch pot that had been cut down after flowering there emerged from the stem, about an inch below the surface of the soil, an adventitious slender leafless shoot, furnished, however, with a few diminutive bracts surmounted with a flower that would have as suitably crowned a season's normal growth. The length of the shoot is barely 5 inches, yet the diameter of the flower that it has produced, measuring beneath the extended ray florets, is over 6 inches, the whole appearing very much as though it had been cut from another plant and simply inserted in the soil.

A similar instance of so dwarf a sucker producing so large and as perfectly developed a flower has never before come under my notice. Through the kindness of Mr. Nichols I am enabled to send for your inspection the detached shoot (fig. 20) severed about half an inch from the stem that produced it. It may be of some interest.—JOHN E. JEFFERIES.

HIRSUTE OR HAIRY CHRYSANTHEMUMS.

MR. MOLYNEUX, in the last issue of the Journal, says this class does not seem to make much progress, which is quite correct; but this is not caused through lack of varieties, but rather by the growers. Very few care for these. Apparently the rage for size has much to do with their unpopularity, for all are deficient in this point, and in spite of all that has been said and written on the subject size is the chief point with present-day judges.

From one to two dozen novelties are introduced every season, but as they lack size they are discarded. This past season I have grown six new sports from Louis Boehmer, but all were dull coloured and shaded from pale yellow to orange and buff. These were introductions from Japan and California. Mr. Molyneux mentions whites. I would recommend him to try White Swan. It is about the size of Mrs. A. Hardy or larger; but it is a very full flower on any bud, and extremely hairy. Those who fancy this class will find this a gem. It is an introduction from California.—W. J. G., *Exmouth.*

SHEFFIELD CHRYSANTHEMUM SOCIETY.

THE annual meeting of this Society was held on the 20th inst. at the Museum, Orchard Street. There was a good attendance of members, who elected Mr. J. G. Newsham to the chair. The business of the meeting was to pass the accounts for the past season and to elect the officials for the current year. At the request of the Chairman the accounts to December 31st, 1896, which had previously been audited and passed, were read by the Secretary, Mr. W. Housley, which, after a few explanations, were unanimously passed.

The result of the past year's working was in a nice addition to the balance in hand brought forward from the previous year. This would have been considerably increased but for the heavy downfall of rain that occurred on the Saturday night of the show at a time when the visitors are most numerous.

The result of the election of officers is that most of the old members retain their seats. A vote of thanks to the Auditors, Messrs. J. Haigh and W. Redmill, for their services and to the Chairman terminated the proceedings.

ROOTING CARNATION CUTTINGS.

CARNATIONS are amongst the most popular flowers that we have at the present time, and the majority who possess glass accommodation are eager to cultivate them successfully. The inquiries how to root them by means of cuttings are numerous.

I remember some years ago rooting them very successfully by a system detailed by Mr. W. Taylor when at Longleat. It was something like this, to insert the cuttings in sandy soil in boxes 5 or 6 inches deep, and then cover them with glass after watering, the boxes being rendered air-tight by pasting strips of paper round the edges of the box. When these boxes were given slight bottom heat we found the cuttings rooted freely enough.

I cannot say I have been very successful in rooting Carnations by means of cuttings for some years past. This is mainly due to the want of a suitable place and the aid of bottom heat. Failure to root cuttings left us no alternative but to obtain plants by layering; certainly a safe and reliable method, but at times it takes up more room than can be well spared, especially at certain times of the year.

Not caring to be beaten in this matter we made an effort in another direction with successful results. First we tried a 10-inch pot half full of common sand, into which three small pots of Carnation cuttings were plunged, the pot being covered with glass, and then stood on a hot-

water pipe in a house where the temperature ranged from 60° to 65° at night. These cuttings rooted freely. Our plan is to fill boxes 1 foot or 15 inches deep partially with sand, cocoa-nut fibre refuse being preferred, so that long thumb pots can be partially plunged in and the top of the cuttings just clear of the glass.

The sand dries rapidly on the pipes, and must be made moist from time to time, or the soil about the cuttings becomes unduly dried. The cuttings selected are young growing shoots from plants in a cool or moderately cool house. Short growths are selected, in fact side growths broken out of the axils of the leaves of plants that are flowering or coming into flower. Sandy soil is used for the small pots, and four cuttings are inserted round the sides. It is not wise to crowd the cuttings, with some varieties three cuttings in each pot are better than four. After insertion the pots are watered, then they are ready for the boxes, and covering up with glass. After the cuttings are broken out of the axils of the leaves they are cut across with a sharp knife below

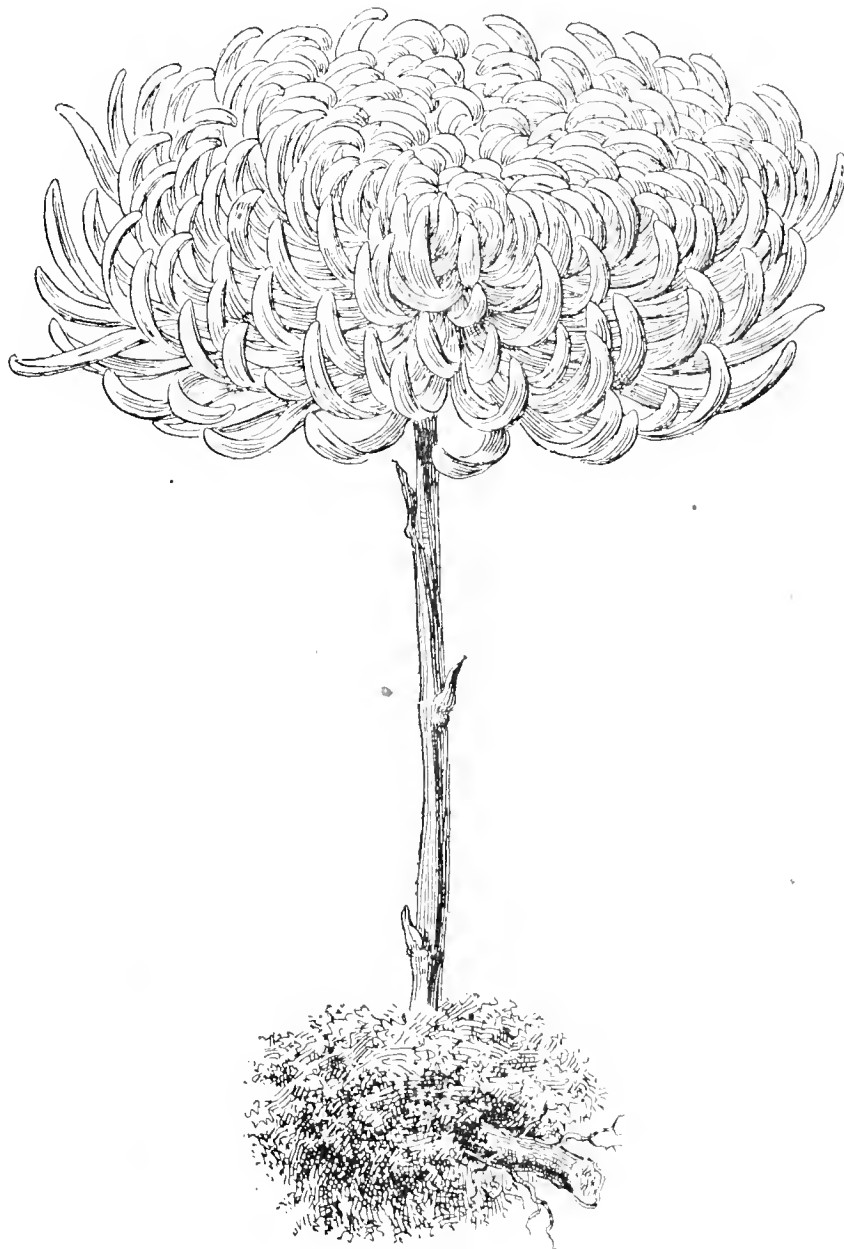


FIG. 20.—A CHRYSANTHEMUM FREAK (*much reduced*).

the first joint. So far we find very little difference whether they are cut below a joint, or the stem split up to the second joint.

After the pots are placed in the boxes no attempt is made to keep them air-tight. To do this would result in losing all the cuttings by damp. By keeping the sand or other plunging material moist in the boxes the cuttings would be constantly covered with moisture, and failure would result. We nearly failed by keeping them too close. The object should be to keep them as close as possible consistent with evaporating the moisture deposited upon them daily.

Our second venture in rooting on the hot-water pipes was 150 cuttings of Mrs. Leopold de Rothschild, which rooted in three weeks, 127 were potted singly, sixteen were again inserted, really losing only seven cuttings. We find some varieties root more freely and more quickly than others. Some commence rooting in a fortnight. If given three weeks the majority will root, and may within a month be potted singly. So far we have not resorted to shading the cuttings, at least only for a day or two after potting them singly if the sun comes out bright.—WM. BARDNEY, *Osmaston Manor.*

PERPETUAL SPINACH.—So far Winter Spinach has not felt the pinch of winter, but a good breadth of "Perpetual Spinach" and some cold frames for the plants will be useful should the weather prove severe through March, when it is a wise plan to take up some and place under cover. Oftentimes March winds kill more than frost. I have found the advantage of so doing, and shall lose no time in providing for an extra dish through March.—A. E.



WEATHER IN LONDON.—The frost that came last week is with us still, and shows little signs of departing. Several degrees have been registered each morning, and the prospects for metropolitan skaters are decidedly bright. Provided it is not too severe the frost will do a considerable amount of good.

WEATHER IN THE NORTH.—Frost of varying intensity has prevailed throughout the past week. On the 21st there were 9°, the same being recorded on Saturday morning. That day was an ideal winter one—bright, cold, and calm. On Sunday morning 11° frost were registered, but a thaw followed and continued throughout the day. Frost set in, and during the night nearly 2 inches of snow fell. Monday was keen throughout, with occasional snow showers. On Tuesday 14° of frost were indicated, with every appearance of its continuance.—B. D., *S. Perthshire*.

ROYAL BOTANIC SOCIETY.—At a meeting of the Fellows held in the Gardens, Regent's Park, on Saturday, the 23rd inst., Mr. J. S. Rubinstein brought forward a resolution recommending the Council to intimate to the Lord Mayor, the Chairmen of the London County Council, the London School Board, and other local authorities, and to the secretaries of recognised societies and institutions, that the Council would be pleased to arrange for the use in the coming season of the Society's Gardens for garden parties and receptions. The resolution was carried.

CHIONODOXA LUCILÆ.—I fear that Nature alone could give Mr. Arnott the information he asks for on page 27. Nature is capricious, and does not always disclose to us her secrets. I have little doubt, however, that the premature flowering of the "Glory of the Snow," in a garden within a mile of the Mull of Galloway, to which I alluded in a recent contribution, was owing not to the period when the bulbs were planted, but to the almost abnormal mildness of the season. During the last two months I have had lilac Primroses continuously in bloom. The St. Brigid Anemones are already preparing to flower, two months before their time. I anticipate, however, that they will not be permitted to proceed with their floral development, as within the last week frost has supervened, accompanied, providentially for early vegetation, with a gentle shower of snow—that white repentance of gracious Nature, whereby she mitigates her own severity.—D. R. WILLIAMSON.

VEITCH MEMORIAL FUND.—The Veitch Memorial Trustees have decided to present this year a large silver medal for distinguished service to horticulture to each of the following gentlemen:—To Norman C. Cookson, Esq., of Oakwood, Wylam-on-Tyne, for his successful hybridisation of Orchids, extending over many years, by which a large number of new and beautiful forms have been added to this remarkable family of plants. To Martin R. Smith, Esq., of Warren House, Hayes, an eminent amateur, who has been most successful in the raising of Carnations. By his efforts many new and beautiful varieties have been raised, especially in the Malmaison section, and among those which, on account of their hardihood and beauty, are adapted for culture in the open border. To Professor L. H. Bailey of Cornell University, Ithaca, N.Y., in recognition of his efforts, by means of his lectures and his writings, to place the cultivation of plants on a scientific basis; to promote the extension of horticultural education, and, by numerous trials and experiments, to improve and render more productive plants grown for economic purposes. To Mons. Charles Naudin of Antibes, a distinguished French botanist and horticulturist, who, by his prolonged series of experiments and observations, has much advanced the theory and practice of hybridisation. M. Naudin has also been highly successful in introducing, cultivating, and distributing a large number of plants of great economic importance, and of thus enhancing the resources not only of his own but of other countries. To Herr Max Leichtlin of Baden-Baden, as one who has rendered eminent service to horticulture by the introduction of a large number of interesting plants, and who has displayed equal sagacity and skill in their cultivation. The Trustees have also decided upon placing a medal and prize of £5 at the disposal of the Shropshire Horticultural Society, to be competed for at their Great Commemorative Exhibition in August next; and have allotted a similar medal and prize of £5 to the Trentham Horticultural Society.

DEATH OF MR. W. PIERCY.—It is with regret we have to record the death of Mr. W. Piercy of Forest Hill, who has done so much to advance the cultivation of early flowering Chrysanthemums. The deceased was born June 27th, 1825, and spent most of his early life in Islington.

LIVERPOOL HORTICULTURAL ASSOCIATION.—On Saturday evening the fourth meeting of the season was held in the Free Library, William Brown Street, Liverpool, Mr. T. White in the chair. The lecturer was Mr. J. Hathaway, Superintendent of Hesketh Park, Southport, formerly of Lathom House, the title of the paper being "Vegetables." As was to be expected from such a notable grower and exhibitor, the subject was dealt with in an excellent manner. The preparation of various soils, with corresponding cultural notes, were fully treated. Manures also formed an important part of the paper, and Mr. Hathaway soon led his audience to the conclusion that he was a firm believer in artificial manures, many of which were quoted. A discussion ensued, the meeting terminating with hearty votes to Lecturer and Chairman.

THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—An extra meeting of the above Society was held on Tuesday, January 19th, Mr. Chas. Lawton in the chair, when a paper on "Herbaceous and Alpine Plants" was read by Mr. A. J. Keeling, Bradford. The essayist must have had considerable practical experience with the subjects of his lecture by the masterly manner in which he handled it. This branch of the profession every gardener should be well acquainted with, some employers thinking as much of their hardy flowers as others do of their Orchids, and indeed it requires as much skill and knowledge to successfully cultivate them as it does the majority of Orchids. Mr. Keeling entered into all the details of their cultivation, their arrangement, and selection of varieties best adapted for the various soils. The weather proving unfavourable, members from a distance were unfortunately debarred the treat their more fortunate brethren enjoyed so much.—F. L. T.

GOLD MEDALLISTS OF THE FRUITERERS' COMPANY.—The banquet of the Worshipful Company of Fruiterers was held on Monday evening the 26th (St. Paul's Day), the newly elected Master, Thomas Platt, Esq., presiding, supported by the Lord Mayor and Sheriffs of London. About eighty members of the Livery and visitors attended. The banquet, speeches and music were of a very high order. The only horticultural Livermen present were Messrs. G. Bunyard and J. Wright. An interesting feature of the proceedings was the presentation of the large gold medals of the Company to Major W. Bythway and Mr. G. Bunyard for their magnificent collections of fruit at the Royal Horticultural Society's Show at the Crystal Palace last autumn. The Major made an earnest and excellent speech on the subject of fruit growing, and subsequently stated that he was mainly indebted for his success to an essay produced under the auspices of the Fruiterers' Company a few years ago, and which has passed through several editions.

THE SNOW.—The earth over a large portion of the kingdom is at present thickly covered with snow. It has come at a very convenient time of the year, when it gives to us who garden a minimum of inconvenience, yet it is a visitation that never seems welcome except to children, because it invariably hinders labour on the land. Our labour conditions here differ so much from those which exist in northern countries, where severe frost and snow annually prevailing over a large portion of the winter season, life and work are accommodated to those conditions. With us any appreciable hindrance to work not only soon produces inconvenience, but also much suffering. That is specially so in relation to soil cultivation. Much as we may rejoice to see vegetation only moderately hardy protected, if but for a short time, from injury by frost and biting wind, yet that same snow protection shuts us out from working the soil, or being upon it, and thus becomes a source of trouble. In addition it creates vegetable scarcity, and humanity and animals alike suffer. But whilst we credit the snow with saving our vegetable and corn crops from harm whilst it lies, we must not forget that the snow is with us at any time but a temporary visitation, and that this same vegetable life is exposed to all the harmful forces of frost and wind over much the greater period of the winter. Hence the approval usually given to a snow visitation is not always deserved. All gardeners know that shut out from other food supplies birds begin to prey upon fruit tree and bush buds voraciously, and do immense mischief, from which the snow does not save our fruits, indeed is the chief cause of the mischief. After all, here in England, at least, there seems to be good reason to doubt the tradition that winter snows are useful for vegetable protection.—A.

— THE WEATHER has been of a very wintery character during the past week. Friday was very stormy, with blinding snowstorms during the greater part of the day, and at night accompanied with heavy thunder and vivid flashes of lightning. The snow is very much drifted in places, 3 to 4 feet deep, but the average depth was about 6 inches, making locomotion very tedious and difficult, consequently all gardening operations are practically at a standstill in this neighbourhood.—G. R. ALLIS, *Old Warden Park, Beds.*

— THE WEATHER—SUMMARY FOR THE YEAR, 1896.—This was remarkable for a small rainfall and high temperature during the first five months, and a heavy rainfall with deficiency of sunshine during September, October, and December. The total rainfall was 2.63 inches below the average, although the month of September gave 1.83 inch above the average for the month, and was the wettest September since 1883. The prevailing direction of the wind was W. on 118 days. Total rainfall 24.46 inches, which fell on 202 days, the greatest daily fall being 0.89 inch on July 7th. Barometer—Highest reading, 30.698 on January 9th at noon; lowest, 28.454 on March 4th at 9 A.M. Thermometers—Highest in shade, 86°, June 16th and July 21st; lowest, 16°, February 26th. Mean of daily maxima, 55.82°; mean of daily minima, 41.14°. Mean temperature of the year, 48.48°; lowest on grass, 9° on February 26th; highest in sun, 145°, June 16th. Mean of earth at 3 feet, 49.25°. Total sunshine, 1409 hours 20 minutes; we had seventy-nine sunless days.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham.*

— GARDENING SCHOLARSHIPS.—Mr. N. N. Sherwood, the Master of the Worshipful Company of Gardeners, has offered a scholarship of £25 a year for two years, to be awarded after the examination of the Royal Horticultural Society on April 6th, 1897, to the student that shall pass highest, if he is willing to accept the conditions attaching thereto. The main outline of these conditions is that the holder must be between the ages of eighteen and twenty-two years, and that he will study gardening for one year at least at the R.H.S. Gardens at Chiswick, conforming to the general rules laid down there for students. In the second year of the scholarship he may, if he like, continue his studies at some other place at home or abroad which shall be approved by the Gardeners' Company and by the R.H.S. Council. A similar scholarship has been kindly promised for 1898-9 by Mr. G. W. Burrows. If the student who is at the head of the examination is for any reason unable or unwilling to accept the scholarship, it is then offered to the next highest on the list, and so on throughout the first class.—(*"Gardeners' Magazine."*)

— ROYAL METEOROLOGICAL SOCIETY.—The annual general meeting of this Society was held on Wednesday, the 20th inst., at the Institution of Civil Engineers, Great George Street, Westminster, Mr. E. Mawley, F.R.H.S., President, in the chair. The Secretary read the Report of the Council, which showed that the Society had made steady progress during the past year, there being an increase of seventeen in the number of Fellows. The President then delivered an address on "Shade Temperatures," in which he stated that of all meteorological observations there were none approaching in importance those made of the temperature of the air—generally known as "shade temperature." Indeed, the first question invariably asked in regard to almost any climate was as to its temperature. Mr. Mawley traced the history of the different methods of exposing thermometers since the time that regular observations of the weather had been made in this country. For many years open screens were most favoured by meteorologists, that devised by Mr. J. Glaisher, F.R.S., and the late Astronomer Royal (Sir G. B. Airy) being the pattern principally used. In 1864 Mr. T. Stevenson, C.E., invented an admirable form of closed screen with louvred sides, which was considered preferable to the open type of screen, and has now almost entirely superseded the Glaisher stand. In 1883 the Stevenson screen was considerably improved by a Committee of the Royal Meteorological Society. Mr. Mawley then described his own experiments at Croydon and Berkhamsted as regards this improved screen, known as the Royal Meteorological Society's pattern. He showed that the only two defects which had been attributed to this form of thermometer exposure were virtually non-existent, and therefore advised its general adoption both in this country and on the Continent. Mr. Mawley had recently made observations in the Stevenson screen, and also in the screens used in France and Germany, and the conclusion he had come to was that the results obtained in the Stevenson screen were not only the nearest to the true air temperatures, but also more likely to be strictly comparable with temperatures taken in a similar screen but with different surroundings elsewhere.

— LEE, LEWISHAM, AND BLACKHEATH HORTICULTURAL SOCIETY.—We gather from the report of this well-known suburban Society that special efforts will be made during this year of Her Majesty's Diamond Jubilee to produce an exhibition worthy of the occasion. The winter session, it is said, is in full swing, and judging from the tone of the meetings and the excellence of the papers read it is expected to prove one of the most successful the Society has yet held.

— BARNESLEY PAXTON SOCIETY.—The thirteenth annual meeting of the Barnesley Paxton Society was held on Tuesday last the 19th inst. Mr. John Henshall, superintendent of Locke Park, occupying the chair. The report and balance-sheet as read by the Secretary, Mr. S. Balanger, showed the Society to be in a sound and flourishing state. During the past year twenty-six meetings had been held, devoted to the discussion of the most important current gardening subjects. The attendance showed a high percentage, and the Committee had every reason to be gratified by the interest in the papers read, the sound, practical, and genuine participation in the discussions by the members. The library had been augmented, and they might claim to have spent the money voted for that purpose, about £5, in a judicious manner. They had still a substantial balance in hand, and taking everything into due consideration they might fairly claim the past year the most successful one in the Society's career of thirteen years' duration. Mr. Henshall was re-elected as President; Messrs. Geo. Wright, J. Parker-Reeves, and Battey Vice-Presidents; Mr. W. Hoey, Treasurer; Mr. Hancock, Librarian; Mr. Winter, Curator; Messrs. Wilkinson and Rideau, Auditors.—T. G.

— A CLAIM FOR PRUNING FRUIT TREES.—At the Hereford County Court on Tuesday in last week, before his Honour Judge Harris Lea, Mr. John Watkins, Pomona Farm, Withington, sued Mr. Chas. Davies Andrews, solicitor, of Leominster, for £3 6s., balance of account as follows:—May, 1896, to pruning trees at Leysters Farm, men's time, and expenses, £26 6s. 6d.; by cash, £23 0s. 6d.; balance, £3 6s. In August, 1893, the plaintiff, at the request of Mr. Andrews, made an inspection of the trees to see what would be required in the way of pruning. In November, 1895, Mr. Andrews wrote to Mr. Watkins asking him to recommend a man to him whom he could rely on to do the pruning in the orchard he had walked over. Mr. Watkins, in accordance with that letter, recommended a man named Parry, who bore the reputation of being a skilful and experienced man. Mr. Andrews, in defence, contended that the work was not properly done. His Honour remarked that if Mr. Watkins had undertaken the work at a stated rate he would have been responsible for the proper carrying out of the work. But that was not the case. Having referred to some of the letters which had been read, he thought Mr. Watkins did all he could for the defendant. If he had made a contract it would have been a different thing. He gave judgment for plaintiff.

FLORISTS' FLOWERS AT HIGHBURY.

VARIOUS winter flowering plants for cut flowers and decorative purposes are extensively grown at Highbury, the well kept establishment of the Right Hon. J. Chamberlain. At a visit made just before Christmas the splendid conservatory was very gay with well grown Chrysanthemums of all the leading varieties beautifully arranged. Other flowering plants, such as Primulas, Begonias, Cyclamens, Zonal Pelargoniums, were all admirably represented, making with various foliage plants a fine display.

Well grown Primulas occupy one house, another being devoted entirely to Cyclamen. This is a grand sight, hundreds of plants showing large quantities of their beautiful varied coloured flowers. Sutton's Butterfly is one of the very best whites. Carnations continue to give their useful sweet-scented flowers for cutting purposes. Roses are breaking well, and the earliest are showing a grand crop of buds, which will prove most useful later on. Violets are extensively grown, and frames full of these are flowering most profusely. Stove flowering plants include fine Anthuriums, and Poinsettias have their place of welcome, the scarlet bracts showing well, intermixed with Palms and other foliage plants. These are only a few things I noted in a hurried run through with Mr. J. Deacon on a gloomy December day.

I noticed in the Orchid house some fine examples of *Cattleya labiata*, maxima, Dowiana; *Lælia* vars., *Dendrobiums*, *Odontoglossums*, *Oncidiums*, and many other well-grown Orchids. Speaking of *Dendrobies*, I measured a growth of *Wardianum* over 4 feet long, thick, and well-proportioned, showing flowers the whole length. As these are grown in great quantities, they must produce a grand display. The various *Lælias*, aniceps and all the varieties, are showing well; many dozens of spikes look most promising. These under the fostering care of Mr. Burberry, the Orchid grower here, will give a good account of themselves in the near future.—URBANUS.

CHEMISTRY IN THE GARDEN.

(Continued from page 48.)

NITROGEN (symbol N).—This element, like the two preceding it, is a colourless invisible gas, found abundantly in Nature in a free and also combined state. Free nitrogen forms nearly four-fifths of the atmosphere, and combined with other elements it is found in small quantities in the air and in water, and in larger quantities in soils, plants, and animals. Nitrogen is an essential constituent of all plants; it enters into the composition of protoplasm and other organic compounds found in them, protoplasm being the substance which is the living part of plants.

All the combined nitrogen on the earth has undoubtedly been derived from the free gas of the atmosphere. The free nitrogen, although present in such large quantities in the air, is of no direct value to plants, for with a few exceptions they cannot assimilate it. After years of careful research and numerous experiments it has been found that crops depend, with the exception of the Leguminosæ, upon nitrogenous compounds in the soil for their supply of nitrogen, and that plants absorb it by means of their roots, chiefly in the form of nitrates; but they may to a lesser extent also absorb it as ammonium salts. When we purchase nitrogenous manures we have to pay from 6d. to 9d. a pound for nitrogen in the form of ammonia, and from 9d. to 1s. for nitrogen in the form of nitrates. Seeing, therefore, how important ammonia and nitrates are from a commercial point of view, we should do well to devote a little of our time to their study.

AMMONIA (symbol NH_3).—This substance at ordinary temperatures is a gas possessed of a pungent odour, having an alkaline reaction. Ammonia, as we may see by its chemical formula, consists of one volume of nitrogen chemically united with three volumes of hydrogen. If equal volumes of hydrogen and nitrogen were weighed we should find that the latter would weigh fourteen times heavier than the former. In ammonia we have one volume of nitrogen which equals 14, and three volumes of hydrogen which equals 3; the weight of ammonia gas would therefore be seventeen times heavier than hydrogen gas, equal volumes being taken. As these varying weights may be a little puzzling to some of our readers it will, perhaps, be advisable before proceeding further to give a table of the elements we shall have to consider, with their respective weights appended.

APPROXIMATE WEIGHTS OF ELEMENTS.

Elements.	Weight.	Elements.	Weight.
Hydrogen	1	Potassium	39
Oxygen	16	Magnesium	24
Nitrogen	14	Calcium	40
Carbon	12	Iron	56
Sulphur	32	Chlorine	35½
Phosphorus	31	Sodium	23

Ammonia being a gas the gardener could not apply it very well in that form to his plants; but seeing it has an alkaline property, it will, therefore, combine with acids to form salts. These salts are solid substances, of which the following may be taken as examples:—Ammonium sulphate, ammonium nitrate, and ammonium phosphate.

Nitrates are salts formed by the chemical union of nitric acid (HNO_3) with a base. The alkaline bases, such as potash, soda, lime and magnesia, will all unite readily with nitric acid to form nitrates of potash, soda, lime, and magnesia, and these substances are of considerable value to gardeners as fertilisers. Ammonia and nitrates, however, will be dealt with more fully when we come to consider soils and manures in their relation to plant life.

CARBON (symbol C).—This substance is the most widely diffused in Nature of all the elements. It is found in a solid form, and nearly pure, in the diamond, in graphite, and in charcoal. It is also found in large quantities in a more impure state in coal. One hundred pounds of good anthracite from South Wales contains 92·73 lbs. of carbon, 3·36 lbs. of hydrogen, and 3·91 lbs. of oxygen and nitrogen. Carbon and oxygen unite chemically to form a gas called carbonic acid gas (CO_2). This acid combines readily with the base lime to form carbonate of lime or chalk, a substance which occurs in considerable quantities on the earth. On an average every 10,000 volumes of air contains four volumes of carbonic acid gas.

All parts of plants, and every organic compound found in them contains carbon. Plants obtain their carbon from the carbonic acid gas of the atmosphere by means of their leaves; and submerged water plants obtain their carbon from the same gas which is dissolved in water.—W. D.

(To be continued.)

DEUTZIA LEMOINEI.

So popular are the several species and varieties of Deutzias, as well for flowering in the open as for forcing for winter decoration, that a new one is hailed with pleasure. Several months ago a Deutzia named Lemoinei was staged at the Drill Hall by Messrs. Cripps & Son, Tunbridge Wells, and to which the Floral Committee adjudged a first-class certificate. In habit the plant is excellent, being dwarf and remarkably floriferous. In style of growth it favours Deutzia gracilis in many points, but the snow white flowers are produced on stout perpendicular growths differing from the well-known pendent habit of the older variety. The woodcut (fig. 21) will convey an idea of the form and manner of flowering of this beautiful plant.

THE DISCOLOURATION OF POTATOES.

HAVING read with much interest the instructive dissertations given by the various authorities at the recent Potato Tercentenary Conference, I failed to find particular mention of that all-important affection which unfortunately still reigns paramount throughout the kingdom, if not in other parts of the Potato-producing world. I allude to that detrimental ailment—the propensity of acquiring a discolouration in the tissues of the tuber when grown in certain soils (assuming that the nature of the soil to be the cause), owing presumably to a deficiency of some constituent necessary for the production of good and mealy Potatoes free from the blemish indicated, and which, next to the “disease,” is one of the most undesirable affections to which the “noble tuber” is heir.

Various theories have been advanced as to the real cause and nature of the ailment in question, and in addition to that pertaining to some chemical constituent deficiency in the soil. The more general theory entertained amongst cultivators, such as farmers and market gardeners, is that founded upon the supposition that it is the effect of bruising the tubers through rough handling when gathering and storing the crop. Another theory is entertained that it arises from a superheating of the tubers when stored in large heaps for the winter, and with insufficient ventilation or other provision for the escape of the steam.

Obviously, however, such theories can hardly be sustained, considering that the ailment in question affects the tubers whilst in their growing state, yet it may be more developed by the storing agency, but hardly by bruising from rough handling. Moreover, there is a factor I have noticed in particular appertaining to the discolouration indicated, and which I opine reaches so far as to discount the storing and bruising theories; it is to the effect that the ailment is confined chiefly to the base of the tuber, or the end opposite to that attached to the roots of the plant—at least, such is the initial position of the affection—and whence it gradually spreads throughout the economy of the tuber according to circumstances.

This theory may be speculative, however, and is subject to further proof, unless some scientist or keener observer than myself is already enabled to confirm or repudiate it, and I for one would be glad to learn if something more definite than that herein advanced can be adduced as to the real cause and nature of the matter in question. I forgot to mention that an excess of humus or nitrogenous pabulum in the soil has been suggested as a probable agent in the production of the ailment.

In conclusion I may remark that during the present winter I have procured samples of Potatoes from several growers and districts supplying the Birmingham market by way of a test, and have found the majority of the samples more or less affected by the phenomenon—the subject of the foregoing remarks.—W. G.

HEPATICAS.

THE common Hepatica in its several varieties has been an admired denizen of gardens for a long period. Parkinson describes no less than ten sorts, of which some at least are still in cultivation. They were known also as Liverworts, under the botanical appellation of Hepatica trifolia, the specific name after a time being superseded by the more correct “triloba.” The latter designation was changed by Linnaeus, by whom the plant was renamed Anemone hepatica; but this appears to have been received with little favour by gardening writers, and even now few recognise the plant under that name. In the “Paradise” three white varieties are described—“the lesser white,” which I take to be “nivea” of Loudon; “the great white,” and “the white with red threads,” which is Loudon’s “red-anthered white,” or alba. The last named is the sort generally sold by nurserymen for the single white. This with the other two I have grown for many years. There are also three blue varieties mentioned. One of these is “blew tending to violet purple.” Parkinson’s red Hepatica is “of a bright blush, or pale red colour, very pleasant to behold, with white threads or chives (anthers) in the middle of them.”

Another variety is “the ash-coloured or argentrive,” notice of which I have found nowhere else. The flowers are much larger than those of the others. I have two varieties of H. angulosa, which are in respect of habit, size of foliage, and flower distinct from each other, though similar in colour. Is it not possible that one of these may be the argentrive? Of double varieties only two are named, both of which are still cultivated.

One is the double purple, now sold as "*coerulea fl.-pl.*" "The flowers are small buttons, but very thick of leaves and as double as a flower can be, of a deep blue or purple colour." This variety is weakly in constitution; a plant I have had for at least twenty years is no whit larger now than it was when planted. The other is the double blue Hepatica, a variety that is identical in the shape of the flowers with the double red, and of which a bloom is portrayed with great exactness in Hill's "*Eden.*" Rea calls it "watchet blue." This writer describes the double white Hepatica, which, he says, has "smaller and fresher green leaves than the others; the flowers snow white and as thick and double."

This variety, said by the writer to be "the most rare and tender," as well as a single white, double and single blue, and double and single red, is mentioned by Laurence in "*A New System of Husbandry,*" 1727,

Barlowi is well known. I grow, besides those already noted, a light coral coloured variety, and another with deep pink flowers, both very pretty. Robinson, in "*Alpine Flowers,*" mentions *splendens*, and one grower catalogues *violacea*, both varieties that I have not seen.

The finest of all Hepaticas, however, is the large-flowered form of *angulosa*. It spreads over the surface of the ground, and in a few years forms broad masses which are perfectly smothered in late spring with large flowers of a lovely light blue colour. No kind grows so well as this, and judged on its merits it is doubtful if any flower blooming at the same time surpasses it in quiet beauty.

Hepaticas are generally supposed to be easy to cultivate, but on light soils I have found them, with the exception of a few varieties, to be rather difficult to manage. In a state of nature they choose a somewhat shady position. Under cultivation they appear to require a strong



FIG. 21.—*DEUTZIA LEMOINEI*.

Laurence says there are other kinds, but those he mentions are considered to be most worthy cultivation. He includes Hepaticas and all other low-growing plants under the curious appellation of "reptiles," which he explains is because they grow near the ground. It is to be remarked that in the part of the work devoted to horticulture, which is a very small portion of the whole, matters are noted that go to show Laurence cannot be credited as an authority. Hence, when we find in Hill's "*Eden*" (1757) a shade of suspicion hovering over the existence of the double white Hepatica one is more careful in giving credence to what the other writes about it. Though Hill is said not to have written himself, his book bears evidence that it was written by someone well up in the subject.

In addition to these I have a note that Crispin de Pass names and figures a yellow variety—"H. trifolia aureum." This, the double white and the argentea, would be welcome additions could they be found to the number of our old flowers. Of what may be called modern varieties

holding soil, and a position somewhat shaded from the sun. In herbaceous border running north and south they exhibit a marked preference for the west side of the walk. An established plant resents removal or division, therefore it is well, a short time previous to the appearance of the flowers, that a little fresh soil be sprinkled over the clumps. This has a markedly beneficial effect on their health.

The plants bear seed very freely, and old writers advise advantage to be taken of this in order to raise new colours; and, if the seeds are kept for some years before sowing, new double varieties. Seedlings come up plentifully here, but no new variety has been produced. I have seen the practice of raising plants from seeds recommended of recent years. It would be interesting to know from some one of those who have raised seedling Hepaticas what they think of the plan, and whether any variety of outstanding merit has been produced. None of our seedsmen offers seeds, and one is induced to believe that the practice has never taken hold.—R. P. B.

ROYAL HORTICULTURAL SOCIETY.

THE COMMITTEES FOR 1897.

IN a recent issue we gave the dates of the meetings of this Society, to be held during the ensuing year. Full particulars of the exhibitions can be had from the Society's publication, known as "Arrangements for 1897," in which are also given lists of the various Committees, and these we reprint for the benefit of our readers.

SCIENTIFIC COMMITTEE.

Chairman.—Sir J. D. Hooker, K.C.S.I., C.B., F.R.S., &c., The Camp, Sunningdale.

Vice-Chairmen.—Dyer, W. T. Thiselton, C.M.G., F.R.S., Royal Gardens, Kew; Foster, Prof. M., Sec. R.S., Great Shelford, Cambridge; Masters, Maxwell T., M.D., F.R.S., &c., Mount Avenue, Ealing, W.

Hon. Secretary.—Rev. Prof. G. Henslow, M.A., F.L.S., Drayton House, Ealing, W.

Allen, J., Park House, Shepton Mallet.
Baker, J. G., F.R.S., Royal Gardens, Kew.
Balfour, Prof. I. B., F.R.S., Botanic Gardens, Edinburgh.
Bonavia, Dr. E., 5, Harrington Mansions, South Kensington.
Burbidge, F. W., M.A., F.L.S., Trinity College Gardens, Dublin.
Church, Prof. A. H., M.A., F.R.S., Shelsley, Kew Gardens.
Clarke, Col. R. Trevor, Welton Place, Daventry.
Darwin, Francis, F.R.S., Wychfield, Huntingdon Road, Cambridge.
Dod, Rev. C. Wolley, Edge Hall, Malpas, Cheshire.
Elwes, H. J., F.L.S., F.Z.S., Colesborne, Andoversford, Glos.
Engleheart, Rev. G. H., M.A., Appleshaw, Andover.
Farmer, Prof. J. B., M.A., Royal College of Science, S. Kensington.
Frankland, E., F.R.S., The Yews, Reigate Hill, Reigate.
Godman, F. DuCane, F.R.S., 10, Chandos Street, Cavendish Square.
Lindsay, R., Botanic Gardens, Edinburgh.
Llewelyn, Sir J. T. D., Bart., F.L.S., Penllergaer, Swansea.
Lynch, R. Irwin, A.L.S., Botanic Gardens, Cambridge.
Maxwell, W. H., Munches, Dalbeattie, N.B.
McLachlan, R., F.R.S., Westview, Clarendon Road, Lewisham, S.E.
Michael, A. D., F.L.S., Cadogan Mansions, Sloane Square, S.W.
Morris, D., C.M.G., M.A., F.L.S., D.Sc., 14, Cumberland Road, Kew.
Müller, Hugo, Ph.D., F.R.S., 13, Park Square East, Regent's Park.
Oliver, F. W., D.Sc., F.L.S., 10, Kew Gardens Road, Kew.
Plowright, C. B., F.L.S., 7, King Street, King's Lynn.
Russell, W. J., F.R.S., Ph.D., 34, Upper Hamilton Terrace, N.W.
Scott, D. H., M.A., Ph.D., F.R.S., F.L.S., The Old Palace, Richmond, S.W.
Sutton, A. W., F.L.S., Reading.
Veitch, H. J., F.L.S., King's Road, Chelsea, S.W.
Ward, Prof. Marshall, F.R.S., The Laurels, Englefield Green, Staines.
Wilson, Geo. F., F.R.S., Heatherbank, Weybridge Heath.

FRUIT AND VEGETABLE COMMITTEE.

Chairman.—Crowley, Philip, F.L.S., Waddon House, Croydon.

Vice-Chairmen.—Bunyard, Geo., The Royal Nurseries, Maidstone; Hogg, R., LL.D., F.L.S., 99, St. George's Road, S.W.; Rivers, T. Francis, Sawbridgeworth.

Secretary.—Wilks, Rev. W., Shirley Vicarage, Croydon.

Balderson, H., Corner Hall, Hemel Hempstead.
Barron, A. F., Sutton Court Road, Chiswick, W.
Bates, W., Poulett Lodge Gardens, Twickenham.
Bennett, W., Rangemore Park Gardens, Burton-on-Trent.
Cheal, Joseph, Crawley, Sussex.
Crasp, T. H., Osberton Hall Gardens, Worksop.
Crump, W., Madresfield Court Gardens, Malvern.
Cummins, G. W., The Grange Gardens, Wallington.
Dean, A., 62, Richmond Road, Kingston, S.W.
Divers, W. H., Belvoir Castle Gardens, Grantham.
Dunn, Malcolm, The Palace Gardens, Dalkeith, N.B.
Empson, W. J., Ampthill House Gardens, Beds.
Farr, W., Spring Grove House Gardens, Isleworth.
Fife, Robert, Dobbie's Nurseries, Orpington, Kent.
Herrin, C., Dropmore Gardens, Maidenhead.
Iggulden, W., North View, Frome, Somerset.
Laing, J., jun., Forest Hill, S.E.
Lane, Fred. Q., Berkhamsted.
McIndoe, James, Hutton Hall Gardens, Guisborough.
Miles, G. T., Wycomb Abbey, High Wycomb.
Norman, G., Hatfield House Gardens, Hatfield.
Pearson, A. H., The Nurseries, Chilwell, Notts.
Pope, W., Highclere Gardens, Newbury.
Reynolds, G., The Gardens, Gunnersbury Park, Acton.
Sage, G. H., Ham House Gardens, Richmond, S.W.
Saltmarsh, T. J., The Nurseries, Chelmsford.
Smith, James, The Gardens, Mentmore, Leighton Buzzard.
Veitch, J. H., King's Road, Chelsea.
Veitch, P. C. M., The Royal Nurseries, Exeter.
Ward, H. W., Lime House, Rayleigh, Essex.
Willard, Jesse, Holly Lodge Gardens, Highgate, N.
Woodward, G., Barham Court, Teston, Maidstone.
Wright, John, 171, Fleet Street.
Wythes, G., Syon House Gardens, Brentford.

FLORAL COMMITTEE.

Chairman.—Marshall, William, Auchinraith, Bexley.

Vice-Chairmen.—Fraser, John, The Nurseries, South Woodford Paul, George, The Old Nurseries, Cheshunt.

Secretary.—T. Humphreys, R.H.S. Gardens, Chiswick, W.

Bain, W., The Gardens, Burford Lodge, Dorking.

Barnes, N. F., Eaton Gardens, Chester.

Barr, W., 12, King Street, Covent Garden, W.C.

Beckett, E., Aldenham House Gardens, Elstree.

Blick, Chas., The Warren, Hayes Common, Beckenham.

Cannell, H., Swanley, Kent.

Crane, D. B., Archway Road, Highgate, N.

Catbush, H. J., The Nurseries, Highgate, N.

Dean, R., Ranelagh Road, Ealing, W.

Druery, C. T., F.L.S., 25, Windsor Road, Forest Gate.

Fitt, J. H., The Frythe Gardens, Welwyn.

Fraser, John, Willow Cottages, Kew.

Gordon, G., Endsleigh, Priory Park, Kew.

Herbst, H., Kew Road, Richmond, Surrey.

Hogg, R. M., 99, St. George's Road, Pimlico, S.W.

Hudson, J., Gunnersbury House, Acton.

Jeffries, C., Boston House Gardens, Brentford.

Jennings, J., Ascott Gardens, Leighton Buzzard.

Jones, H. J., Ryecroft, Hither Green, Lewisham.

Laing, J., Forest Hill, S.E.

Lowe, R. B., Ashridge Gardens, Berkhamsted.

McLeod, J., Dover House Gardens, Roehampton.

May, H. B., Dyson's Lane, Upper Edmonton.

Mawley, E., Rosebank, Berkhamsted.

Molyneux, E., Swanmore Park Gardens, Bishop's Waltham.

Nicholson, G., Royal Gardens, Kew.

Owen, R., Castle Hill, Maidenhead.

Pawle, J. D., 12, Stanley Gardens, Willesden Green, N.W.

Pearson, C. E., Chilwell, Nottingham.

Peed, T., Roupell Park, West Norwood.

Salter, C. J., Woodhatch Gardens, Reigate.

Sanders, T. W., 124, Embleton Road, Lewisham.

Selfe-Leonard, H., Hitherbury, Guildford.

Stevens, Geo., St. John's Nursery, Putney.

Thomas, Owen, Royal Gardens, Windsor.

Turner, H., Royal Nurseries, Slough.

Walker, J., Ham Common, Surrey.

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Mason, Major, The Firs, Warwick.

Pilcher, Charles, 84, Ringford Road, Wandsworth, S.W.

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Williams, H., Victoria Nurseries, Holloway, N.

Winn, C., The Uplands, Selly Hill, near Birmingham.

Young, W. H., Clare Lawn Gardens, East Sheen, S.W.

NARCISSUS COMMITTEE.

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 Krelage, J. H., Haarlem, Holland.
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 Marsh, Rev. T. H., Cawston Rectory, Norfolk.
 Milne, Readhead, R., Holden Clough, Bolton-by-Bowland, Clitheroe.
 Moore, F. W., Royal Botanic Gardens, Glasnevin, Dublin.
 Perry, Amos I., Hardy Plant Farm, Winchmore Hill, N.
 Vilmorin, Henry L. De, Quai de la Mégisserie, Paris.
 Walker, James, Ham Common, Surrey.
 Ware, Walter T., Inglescombe Nurseries, near Bath.
 Willmott, Miss, Warley Place, Great Warley, Essex.

FERTILISERS FOR THE ORCHARD.

AT the recent annual meeting of the Indiana Horticultural Society a paper read by Mr. W. W. Stevens on the "Feeding and Care of Orchards" contained many valuable thoughts. As to the relation between fertility of soil of the best crops, he said that when a bearing orchard begins to decline in the quality of fruit lack of fertility is indicated. Orchards should be fed before the fertility is exhausted and the trees become stunted. It is a simple matter to understand that orchards must be fertilised for precisely the same reason that our grain fields and gardens are manured. The fruit removes the phosphoric acid, nitrogen and potash from the soil just the same as cereals and root crops do, and we must keep a liberal supply of available plant-food in the soil for the orchard if we expect profitable returns. In fact it is more necessary to fertilise the orchard than it is our grain fields, for the reason that on most farms much of the grain produced is consumed by the stock, and through the manure heap finds its way back to the land, while there is little or nothing that goes back to the soil from the fruit crop that is harvested year after year.

We hear the question asked quite frequently, Why is it that our orchards are not vigorous and long-lived as they used to be? It is chiefly because they are starved to death. Even the new lands we now clear up are not as rich in vegetable mould and the mineral elements of the plant food that make tree growth as they were half a century ago. In fact, much of our woodland is now pastured until it is half exhausted before the trees are taken off, or rather die off.

It requires about the same elements of plant food to make an Apple tree that it does a Pear or Peach, but when the fruits are analysed we find quite a difference in their composition. For example:

	Phos. acid.	Potash.	Nitrogen.
100 bushels Apples contain ...	1 lb.	10 lbs.	7 lbs.
100 bushels Pears, about ...	1½ lb.	4 lbs.	5 lbs.
100 bushels Peaches, about ...	2½ lbs.	13 lbs.	6 lbs.

Thus we see that potash is the predominating element in Apples and Peaches, while nitrogen leads in Pears. Apples need two and a half times and Peaches three times as much potash as Pears. It would not be good judgment to use precisely the quantities indicated in the above table to get an additional 100 bushels of fruit. The new wood-growth and foliage must be accounted for, as well as an allowance for some losses through fermentation and bleaching. It is also impracticable to distribute any fertiliser so perfectly as to bring all of it within reach of the feeding rootlets of a tree. I would always advise a liberal use of such plant food as we are sure our trees need, for a year lost in an orchard by failure to feed is gone irretrievably.

Whatever we use to fertilise the orchard should be in readily available form, so that the trees can profit from it from the moment it is worked into the soil. Barnyard manure is not the best thing to use by any means. Its nitrogen is partly available, but the potash and phosphoric acid are not. When barnyard manure is applied new wood will be formed in abundance, while the aim of the orchardist should be to have as little new wood as is consistent with bearing spurs, and these spurs will not form satisfactorily when there is too much nitrogen in the soil. Besides, fruit from orchards fed with improperly balanced manures not only keeps badly, but also lacks flavour.

The following formulas are suggested for bearing orchards:—For Apples, ammonia 4, potash 6, phosphoric acid 2 per cent. For Peaches, ammonia 4, potash 5, and phosphoric acid 6 per cent. For Pears, ammonia 4, potash 2, and phosphoric acid 4 per cent. Acidulated tankage is preferable for the ammonia, or fish scrap if more convenient. The cheapest potash would be the muriate. The phosphoric acid is most useful as acid phosphate. From 500 to 600 lbs. of fertiliser to the acre should be applied and worked well into the soil every year, whether the orchard bears or not.

When these available fertilisers are used the application should be made in early spring, and then there can be no loss of fertility during the winter from surface drainage or leaching. Clover can be grown and

ploughed under to supply the orchard with the nitrogen it needs, but the potash and phosphoric acid must be spread upon the land, having been obtained from whatever source is cheapest.

When orchards are on very rolling land, or land that washes badly, seed down to Clover and orchard grass and cultivate about the trees with the hoe for several years, or until they are old enough to bear. Such an orchard should never be pastured with any kind of stock, and the ground will remain loose and offer a nice mellow bed for the feeding rootlets of trees.

Mr. Stevens does not think it pays to renovate old orchards. The time and labour spent to get them into any sort of satisfactory condition will suffice to start a new orchard that will be a source of profit and satisfaction for half a lifetime.—J. TROOP (in "Garden and Forest.")

NOTES FROM THE ISLE OF WIGHT.

THE ARRETON HORTICULTURAL SOCIETY.

THE annual meeting of this Society was held on Wednesday, January 20th. The Rev. J. Black-Hyland was re-elected President, and Mr. G. Way, C.A., Chairman of Committee. The date of the next show was fixed for July 28th, 1897. Prizes were offered to be competed for at the next show by Messrs. Daniel & Son of Norwich, Toogood & Sons of Southampton, and John Dimmick of Ryde.

ISLE OF WIGHT CHRYSANTHEMUM SOCIETY.

The annual meeting of the Isle of Wight Chrysanthemum Society was held at Warburton's Hotel, Newport, on Saturday, January 16th. Dr. Groves, B.A., J.P., Chairman of the Society, presided. The financial statement showed that the year 1896 commenced with a surplus of £23 9s. 5d. The takings of the last show amounted to £30 7s. 5d., which, with donations, brought the total amount of receipts to £98 11s. 4d. The balance in hand for next show is £22 7s. Then followed the election of officers. Sir Chas. Seely was re-elected President, Dr. J. Groves Chairman, Dr. M. L. B. Coombs Treasurer, and Mr. J. Taplin Assistant Secretary. Mr. A. E. Cave resigned his position as Secretary, which office will no doubt be taken by Mr. C. H. Cave, florist and seedsman, Newport.

ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION.

A special meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday last, Dr. Groves in the chair. A unanimous vote of thanks was accorded Mr. C. L. Conacher, the new Manager of the Isle of Wight Central Railway, for the reductions he had made in the carriage of Island garden and farm produce, thereby assisting the above Association in promoting the development of the principal industries of the Island. A sub-committee was afterwards appointed to draw up a scheme for the re-organisation of the Association. It was also decided that the Association be affiliated with the R.H.S.

ISLE OF WIGHT COUNTY COUNCIL.

The quarterly meeting of the Isle of Wight County Council was held at the Guildhall, Newport, January 13th, 1897. The Technical Education Committee (Chairman, Col. Crozier, J.P.), reported that the organising Secretary (Prof. Custance) had informed them that during the three months ending December 25th, 1896, thirty-seven village classes had been conducted in the rural district, of which six were horticultural classes.

The horticultural classes had been held at Niton, Carisbrooke, Haven Street, Blackwater, Alverstoke, and Bembridge. The average attendance was good, especially at the Bembridge class. Lectures had been given by the Horticultural Instructor on the following subjects:—"Garden Insects," with lantern slides; "Bees and Bee-keeping," with lantern slides; "Cultivation of Peas and Beans;" "Seaweed, Bones, Soot, and Lime," their value as manures; "Varieties of Early and Late Potatoes for Light and Heavy Soils," with samples; "Canker Club-root, and Potato Blight," with diagrams.

THE YOUNG GARDENERS' DOMAIN.

EUCHARIS CULTURE.

WHAT can be more useful than the beautiful Eucharis Lily with its pure white flowers, and yet in many places we do not see the plants in a thriving condition. To grow them well a good bottom heat and a stove temperature are indispensable, and if a house can be devoted exclusively to their culture so much the better.

I think a common cause of failure is too frequent potting, as experience teaches me that they are very impatient of being disturbed. Most of the plants in the houses under my charge have not been potted for three years, and they are now the picture of health, some of them in 12-inch pots throwing as many as ten spikes of flowers.

When the flowering period is over we rest the plants about six or eight weeks, by lowering the temperature of the house a little. The syringe is used among them freely on bright days, and as the power of the sun increases a light shade is given them.

E. amazonica produces an abundance of bloom, and is very useful for making into wreaths. The smaller flowering variety, E. Stevensi, does not flower so freely with us as the first named, but is more suitable for bouquets and lighter floral work.

The mealy bug is a troublesome pest, but can readily be removed by

sponging the leaves with an insecticide, used according to the directions given by the vendors.

When packing the blooms for transit light shallow boxes should be used (16 inches by 10 inches and 2½ inches deep we find a convenient size), which ought to be neatly lined with tissue paper, and the flowers placed in rows across the box with layers of wadding between them. Thin twigs the exact width of the box pressed down across the ends of the stems as the packing proceeds keep the flowers in position, and thus reducing the liability of their getting bruised.—H. C.

CYCLAMEN.

At the present time we have in flower in these gardens about 100 plants of *Cyclamen persicum*, some of which are carrying between fifty and sixty blooms. The seed was sown on August 8th, 1895, in a temperature of 50°. The seedlings were potted on February 6th, 1896, in 2½-inch pots, and placed on a shelf near the glass. They were next shifted into 4½-inch, and eventually into their flowering pots on July 8th. The soil for each potting contained equal parts of loam, leaf soil, and sand, with about one-fifth of deer droppings. In June the plants were placed close to the glass in frames under a north wall, air being constantly admitted, and on favourable occasions the lights were taken off. Liquid manure was applied twice a week, and a slight syringing given three times a day. They are now flowering in a temperature of 45° to 50°.—F. R., *Nostell Priory Gardens*.

[Concise, precise, and very well written indeed.]

KEEPING A DIARY.

HAVING with pleasure read "Preserving the Best," by "H. T.," page 634 (last volume), in the "Young Gardeners' Domain," I think it a sensible way of preserving articles written by practical men on various subjects in connection with our calling. I therefore hope that many more will follow his plan, from which they will eventually derive much benefit. Keeping a diary consists in writing down each night the work done during the day; also in noting how fruit trees, vegetables, and plants may be progressing in their various stages, along with any experiments that may have been tried with artificial manures or insecticides, and recording their results. Through the kind advice of my superior I was advised to keep a diary for reference in days to come; by so doing I have been able to keep in store much valuable information which no doubt would have been lost. I hope that all young gardeners who have overlooked the great benefit to be derived by so doing will start at once. The most suitable diary I have found is Collins', 1s. each, interleaved with blotting, spaces marked off for each day.—J. W.

CULTURE OF HERBACEOUS CALCEOLARIAS.

SOME experience gained by the cultivation of these plants enables me to give a few details regarding their treatment. A well drained pan, thoroughly clean, nearly full of the following mixture—Loam (good), two parts, leaf mould, one part, coarse sand, one part.

The seed was sown about the middle of June, covered lightly, the pan being then placed on an inverted pot which was standing in another receptacle containing water to prevent slugs from injuring the seedlings, in a cold frame. As soon as large enough the seedlings were potted in 60's, using the same kind of soil as before; they were then placed on a shelf near the glass in the greenhouse. When the plants were ready for another size pot (48's) it was given them, using one-sixth part of old Mushroom bed refuse in addition to the soil mentioned above. Plants in this size pot proved very useful for vases, the others being grown in 32's.

A little stimulant, such as sheep manure water, helps them considerably, especially when throwing up their spikes. Use no more heat than is absolutely necessary; in fact, if the temperature is at freezing point it will not hurt the plants. Keep the surroundings moist, and shade a little when the sun is strong, or they will drop their foliage. Keep a sharp eye for slugs and green fly, and with careful attention you will see on the margins of the leaves drops of water, which is sufficient to say you can manage one of the best of our greenhouse flowering plants.—A. F. L.

TAKING CHRYSANTHEMUM CUTTINGS.

MUCH valuable time is lost and inconvenience caused when this work is not methodically done. On the return of the hulk of the plants from the conservatory the varieties should be arranged in rotation. This is time well spent. If the plants are numbered at potting time, allowing for those still in bloom, they are easily sorted even when a large number are grown.

Many advantages accrue from this simple method. The quantity of cuttings for each variety may readily be ascertained at a glance, and any barren stools may be placed in heat. Then the soil, consisting of equal parts leaf mould and loam, with a free admixture of sand, thoroughly incorporated, passing the whole through a half-inch sieve, may be prepared and the labels written. These early preparations allow of much work being executed in a short time. The labels should be alphabetically arranged on a garden tray or trays, one to each variety; as, for instance, "Avalanche" would be placed in the A section, whilst "W. H. Lincoln" would be situated at the bottom of the tray in the W. section.

Provide another tray or sieve on which are arranged a dozen or more empty 3-inch pots with a little paper over the hole. As the cuttings are taken the empty pots form good receptacles, and are deep enough to prevent the labels toppling over. There is then no risk of varieties being mixed in transit to the potting shed for insertion. Here duplicate dated labels are provided according to the number required, the latter

having been previously determined, and a temporary list drawn up for guidance. Labels of varieties yielding no cuttings or insufficient may be placed on a spare shelf, or in an empty box in the potting shed, being displaced as the requisite number is obtained. This will insure the inclusion of all varieties. When making the cuttings after the number is selected of each variety, all duplicates and parings should be swept off the bench. These simple precautions prevent that dire disappointment at blooming time through the cuttings having been mixed.

For preference long narrow pots (long toms) are used, inserting singly, thereby avoiding damage to the tender rootlets when repotting. Make the soil fairly firm, sprinkle a little silver sand on the top to work in, and insert the cuttings with a blunt dibber, making them firm at the base. Settle the soil with a gentle watering, using a fine rose. Transfer the cuttings to a frame, the bottom filled with ashes to keep them cool, situate near the glass in a house with a temperature of 40° to 50°. Damping must be guarded against, speedily removing all condensed moisture adhering to the glass. The names, dates, and numbers respectively should be entered in a book. At potting off time select the requisite number per each variety, discard weaker duplicates, check off in the book, and number the plants.—H. T.

VINE CULTURE.

IN the "Young Gardeners' Domain" I notice fruit is a subject conspicuous by its absence, so with permission I will give briefly the mode of cultivation which I have found gave the best results in a garden from which various kinds of fruit are exhibited largely. Now that many persons are starting their first houses of permanent Vines, I will deal with them first.

In our vineries the borders are entirely outside, so we cover those of our earliest houses with leaves to a depth of 18 inches, placing a light covering of litter over them in December. All is taken off in May, and a covering of leaf mould given, which helps to retain moisture during the summer. In late autumn the Vine borders have a dressing of gypsum or lime lightly forked in. The roots are close to the surface in all our borders with one exception, this supporting a cane each of Muscat of Alexandria, Ryton variety, and Mrs. Pince; yet all give fine bunches, many up to 7 lbs. weight when ripe, but Mrs. Pince colours poorly. Afterwards the borders are dressed with dissolved bones and sulphate of potash raked in. The borders are well made with the top spit of a deer park, and a sprinkling of bone meal, and half-inch bones mixed in.

Our two earliest houses, which afford ripe Grapes in June and July, were formerly Pine pits, and in the centre of each is a pit 8 feet wide and 7 feet deep running the length of the house; this is filled every year with Oak leaves, the earliest house about January 1st, the other some time later in the month. The leaves are turned half their depth as soon as heated; the heating destroys many slugs, and drives others to the surface, the top leaves then going under when turning. The leaves besides producing humid warmth, good for Vines when starting, are very useful for starting pot Strawberries, raising seeds, and striking cuttings during spring.

Before starting, the houses and Vines are well washed. I do not believe in painting Vines with a pigment, to be washed off in a short time with the syringe. The Vines are gently syringed twice a day till they start; afterwards it depends on the weather. On bright days they are syringed in the morning, and again before closing in the afternoon, and on dark days they may not require syringing at all. The floors are damped several times a day as required. We generally damp down with liquid manure the last time, as the ammonia from it helps to keep the Vines free from red spider and thrips.

Our Vines will not start freely in a temperature under 50°, 10° more in the day, and 5° less at night. After the Vines start we close the house in time to let the thermometer rise to 70°, increasing to 80° when the Vines are in flower, with about 65° in the morning. Syringing ceases when the Vines are coming into flower, and till after the Grapes are cut.—W. T., *Ireland*.

(To be continued.)

WINTER FLOWERING CARNATIONS.

Now is the time to commence propagating these useful plants. The cuttings should be taken from the old stems of healthy plants after the flowers have been removed. They should be pulled off, by which means a portion of the old wood will remain intact, and greatly facilitate the striking of the cuttings. After neatly trimming them they may be placed three in a 2-inch pot, or several in a 5-inch, using a compost of about equal parts of loam, leaf soil, and sand, passed through a quarter-inch sieve.

Care is required in inserting Carnation cuttings. The method I have seen adopted is the following:—Thoroughly clean pots are filled to half an inch of the rim with the compost, a thick coating of sand is placed on the top, and the cuttings dibbled in with a rather blunt dibber. By this means the sand trickles under and around the cutting, thus insuring it to some extent against damp. Give a good watering to settle the soil, after which little or no more will be required until they have rooted. Remove to the propagating house, and plunge the pots to their rims in cocoa-nut fibre.

When rooted pot singly in 2-inch pots, using the same compost as before, but in a slightly rougher state. Grow the plants steadily, increasing the supply of air as they gain strength, so that they may be ready to remove to the frames by the end of March. Winter flowering Carnations require to be stopped about twice to encourage them to make bushy plants. No plants of any description should be both stopped and potted at the same time. About the end of March, and again at the end

of May, are the most suitable times for stopping Carnations, certainly not later than June.

As the pots fill with roots give another small shift into 4-inch pots, water carefully, and give all the air possible, removing the lights altogether on fine days. If all has gone well, by the end of June the plants will be ready for their final shift into 7 or 8-inch pots. This time pot very firmly, using a compost of turfy loam, rough fibry peat, and leaf soil or spent Mushroom bed refuse, in about equal parts, with the addition of a few handfuls of bonemeal and charcoal, also plenty of sand. Some growers prefer to flower their Carnations in 5-inch pots, in which case the potting into 4-inch pots may be dispensed with. The plants should have plenty of room, and be dewed over several times a day with the syringe during sultry weather, carefully shading with tiffany during the hottest part of the day. Have the lights close at hand so as to be easily put on should heavy rains occur. Neatly stake with green-painted stakes, and on the advent of frost remove the plants inside, a low span-roofed structure being, perhaps, the most suitable, but avoid fire heating until absolutely necessary.

Beyond tying and disbudding little more will be required except careful watering and airing of the houses; 50° to 55° by night, and 55° to 60° by day, with a rise of 5° with sun heat will be found a suitable temperature in which to flower the plants. The application of weak soot water once a week during the flowering season will materially assist the blooms both in size and colour. The following is a short list of some of the varieties grown at Luton Hoo:—Mrs. L. de Rothschild, Mdme. Thérèse Franco, Miss Jolliffe (improved), Winter Cheer, Vulcan, Lucifer, La Neige, Miss Mary Godfrey, Jean Cresp, Countess of Monaco. The two last named are French varieties, and are not generally known. —YOUNGSTER.

BURCHELLIA CAPENSIS.

THIS is a beautiful old-fashioned plant, and was very popular many years ago, but it is seldom seen in modern gardens. It is a native of South Africa, and can be grown in an ordinary greenhouse, but is much more satisfactory in an intermediate temperature, such as in a warm



FIG. 22.—BURCHELLIA CAPENSIS.

conservatory or the cool end of a stove, as it grows more freely and flowers more abundantly than in a cool house. The flowers (fig. 22) are produced in clusters, and are of brilliant scarlet colour. A compost of light turfy loam and peat suits the plant well, and whilst growing frequent syringing is beneficial. Under ordinary treatment Burchellia capensis blooms in spring, when its bright flowers and fresh green foliage have a most pleasing appearance.—D.



HARDY FRUIT GARDEN.

Apricots.—Among the various kinds of wall fruits Apricots are the first to bloom. The trees being very hardy are easily excited into blooming, especially when growing on warm, favourable aspects. They need pruning early, so that the handling of the trees may be completed before advance is made to the blooming period.

Apricot trees are subject to the sudden dying off of branches, hence it is necessary to frequently unfasten the trees from the wall, remove useless material, and entirely re-arrange. Fruit is produced both on spurs and annual wood. Many of the spurs on Apricot trees originate naturally. These should be preserved if situated in favourable positions and at reasonable distances asunder. Artificially formed spurs are produced by shortening shoots which cannot be laid in for fruiting, or which, if retained, would cause crowding. Obviously all superfluous shoots cannot be utilised for spur formation. Ill placed, weak, unripe examples are not suitable. Growths of this description cut out. Encourage and preserve clean mature growths of moderate strength.

Pruning.—The natural spurs need no attention whatever. Growths issuing from the artificial spurs may be shortened closely. Select the best of the mature annual shoots for retaining, shortening them back to points where the wood is ripe, and a wood bud present. Wood buds are distinguished from fruit buds by their long pointed character. They are usually situated between two bloom or fruit buds, the whole being known as triple buds. Some shoots have only single buds, which may be wood or bloom buds. As a rule such shoots are unripe or lack vigour. Considering this, it is desirable not to employ them too freely.

Use a sharp knife in pruning. The face of the cuts should be away from the buds. This will direct moisture away from them and prevent possibility of decay. When re-arranging the trees dispose the principal branches equally over the available space. Lay in the secondary branches between, and, lastly, the young growths, those being preferred which spring from the upper sides of branches.

Peaches and Nectarines.—The treatment of these fruits is similar to Apricots. There is, however, one important difference in the general management. Young wood is, as a rule, selected, and laid in more largely for producing the fruit. Moreover, Peaches and Nectarines do not form natural spurs nearly so readily as Apricots. Artificial spurs require time for their formation, but young, well-ripened annual wood bears the following year. Thus the pruning and training is rendered simple, and the loss of branches from any cause can speedily be made good.

Pruning.—None but thoroughly clean and healthy branches should be allowed to remain. Cut out partially diseased or gummed portions below the affected parts. Exhausted branches remove entirely. Shoots that have borne the previous crop ought to be cut out in autumn. If still remaining remove now close to the base of the reserved shoot. Weak and immature wood is better dispensed with entirely.

The selection of the young growths for fruiting is the same as for Apricots. Apportion the ripest and best situated for training in. Shoots requiring shortening ought to be pruned to where the triple buds are situated. Comparatively short, mature growths may be left full length, provided the terminal bud is a wood bud. Shoots having unripe extremities need this portion removing, and any too long for the position assigned them in training must be shortened accordingly.

Cleansing Treatment.—The importance of commencing growth with clean trees cannot be over-estimated. Stone fruit trees are subject to attacks from green and black fly. They attack the trees early in summer, infesting the tips of young shoots. Later in the season red spider frequently proves troublesome to the principal leaves, chiefly appearing on trees in hot aspects during dry weather. Much may be done at this season to prevent these pests infesting the trees if precautions are taken to dress the stems, branches, and shoots with some effective insecticide which will cleanse the bark. Sulphur is an excellent antidote to red spider. A simple mixture of it with soft soap and water affords a dressing inimical to the pest, also to any other which may be lurking in angles and crevices or clustered round the buds. The addition of a little soot and clay to thicken and colour the mixture, bringing it to the consistency of thin cream, proves useful when applying the dressing. It causes the solution to adhere. The mixture must be laid on with a brush, working it in one direction from the base of shoots upwards when dealing with the young growth. This obviates the risk of dislocating the buds.

When the trees are dry the re-arrangement and fastening of the branches can be proceeded with.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest Houses.*—The prevalence of cold north-easterly wind and a murky sky are not favourable conditions under which to accelerate development, or is anything gained by hurrying the trees in the early stages of growth; but often the crop is lost by

pushing them when the external circumstances are unfavourable. Seek, therefore, to maintain steady, progressive, sturdy growth by making the most of sun heat, with early and judicious ventilation. Early forced trees also must be cautiously disbudded, as too early and all-at-once removal of the surplus growths gives a check, which may cause the fruit to fall, and the reaction that follows has its outcome in strong shoots. The proper method is to commence by taking off a few foreright shoots first, then proceed in a similar manner with those on the upper side of the branches, and those on the weakest part or lower side of the wood last. Leave a shoot at the base of the present bearing shoot to supply its place next season, and another must be left on a level with or above the fruit to draw the sap to the fruit. The upper growth should have its point pinched off at the third leaf unless it is necessary for the extension of the tree, when it may be trained in full length. In the case of trees extending the shoots necessary for the formation of the trees must be trained 12 to 15 inches apart. Instead of disbudding last year's extensions the shoots not required for laying in to form the bearing wood of next year may be pinched at the second or third leaf to form spurs, stopping subsequent growths at the first leaf. The bearing shoots on extensions should be 12 to 15 inches distance apart, and the extensions or branches a similar space asunder; for it is necessary in producing fine Peaches and Nectarines that the growths be sturdy, the foliage fully exposed to light, and cleanliness thorough; therefore allow no more shoots to be produced than is required for filling the vacant space, or to furnish the bearing wood of next year.

Syringing and a close moist atmosphere have a tendency to induce soft growths, therefore avoid an excess of both, but when the fruits are set swelling an occasional syringing in the early part of fine afternoons will assist them to cast off the remains of the flowers. Sufficient moisture beyond that of syringing can be secured by damping the paths and borders on dull days, and the foliage is then free to elaborate the sap, though its power is as yet small. When the fruits swell and are the size of horse beans, remove if too thickly placed a few of the smallest and those on the under side of the branches, but do not thin too severely, as excessive thinning, like extreme disbudding, often gives a check inimical to the fruit left; therefore thin by degrees, removing a few at a time, commencing with the weakest part of the trees. If aphides appear vaporise with nicotine essence or fumigate with tobacco, doing either carefully and moderately on two or three consecutive evenings, having the foliage dry and delivering the smoke cool. The foliage of Peaches and Nectarines is very susceptible of injury from tobacco smoke, an overdose being fatal to leaves and crop. If mildew appear, dust the affected parts with flowers of sulphur, or the advertised fungicides in powder may be employed, but apply very lightly. Be careful in giving air in cold weather, as draughts may cause the fruit to fall, and in clear frosty weather it is safer to allow the temperature to rise a little higher than to open the ventilators too much. Let the water supplied to inside borders be equal in temperature to that of the mean of the house; and to assist weakly trees to swell their fruit in the first stage afford liquid manure.

Trees Started at the New Year.—The buds having swelled and shown colour syringing must cease over the trees; but sprinkle the borders occasionally—morning and afternoon—on fine days, so as to maintain a genial condition of the atmosphere. If there is a superabundance of blossom remove that on the under side of the trellis, drawing the hand contrary way of the growth along the shoots. The temperature may be advanced to 45° to 50°, and 50° to 55° in the daytime by artificial means, and 60° to 65° from sun heat, ventilating freely above 55°, and leave a little constantly at the top of the house. Supply water to the inside border as required.

Trees to Ripen Fruit Early in July.—The house must be closed now, and the trees started at the commencement of February. Syringe the trees two or three times a day in bright weather, once a day sufficing when dull, and in severe weather merely damp the path and border. Turn the heat on in the morning so as to raise the temperature to 50°, keeping it at that figure until the decline of the sun; then allow the heat to fall to its night minimum, employing fire heat only to prevent its falling below 40°. Water the inside border if necessary, being guided by its condition, as there is a great difference in border requirements, those formed of retentive material not needing water nearly as often as those composed of loose porous soil.

Later Houses.—When the trees are kept under fixed roofs the buds commence swelling at an early period of the year, but where the roof lights are removed they do not come on sooner than those against walls in swelling. Ventilate freely in bright weather so as to retard the buds as much as possible, not omitting to water inside borders if they show the least indication of dryness, as this is one of the causes of the buds dropping. Houses and wall cases from which the lights have been removed should not have them replaced until the time for starting the trees or the buds are so advanced as not to be safely longer exposed.

Vines.—*Earliest Forced in Pots.*—When Vines are in full leaf they evaporate water rapidly, and require copious supplies of liquid manure or top-dressings of fertilisers washed in, always applying the liquid or water tepid, and taking care to not apply the manure water or fertilisers too strong. Thin the berries as soon as fairly set and somewhat freely in order to induce fine fruit, but not going to the extent of making the bunches loose, though that is better than wedged ones, yet the compact even-berried cluster is more pleasing and desirable. Damping is only necessary in the early part of the day in dull weather, and then in the afternoon on bright days. Maintain the night temperature at 60°, falling 5° on cold nights, 65° to 70° on dull days, 70° to 75° when mild and a

little sun, ventilating at 70°, increasing it with sun heat to 80° or 85°, at which keep through the day, closing so as to run up to 85° or 90°, and then sprinkling the paths and borders.

Earliest Forced Planted-out Vines.—Tying and stopping the shoots to one or two joints above the show of fruit where space is limited must have attention, removing the laterals below the bunch, except those from the two basal leaves, which, with those above the fruit, should be stopped at the first leaf, and subsequently as made. The stopping should be done when the leaf at the stopping joint is about the size of halfpenny, and very important for allowing more growth to be made than there is room, and not considering that a little lateral extension is desirable, causes overcrowding, and that is fatal to good results. Very close stopping, however, is not desirable where there is room for extension, the increased root action and elaborating power being corresponding to the foliage; therefore make provision for an enlargement of growth, and retain all the foliage consistent with its full exposure to air and light. Maintain a temperature of 65° at night, 5° more for Muscats when the Grapes are in flower. As some varieties do not set freely brush the bunches over with a camel's-hair brush or bunch of feathers, when the "caps" come off freely, and apply pollen taken from varieties that afford it abundantly, which usually results in a good set, especially if accompanied by a constant circulation of rather dry warm air. Commence thinning when the berries are about the size of small peas, it then being seen which berries are fertilised by their taking the lead in swelling. Ventilate carefully a little at a time, so as not to reduce the temperature, only to prevent its rising too suddenly and too high. Maintain a genial condition of the atmosphere after the Grapes are set by damping the paths and borders in the morning and at closing time. Water inside borders with tepid liquid manure not less in temperature than the house, or employ some approved fertiliser and wash in moderately.

THE FLOWER GARDEN.

Dahlias.—Strong young plants with one clear stem are preferred to old stools and several shoots, and that whether extra fine exhibition blooms or quantities of flowers for cutting or otherwise are required. Instead, therefore, of planting, or may be dividing the old stools, the better plan is to start these in gentle heat, and root cuttings from them. Set the roots closely together in a newly started vinery or other moderately warm house, covering all but the collars with moist soil. Numerous strong shoots will soon be formed, and these should be taken off with a heel when not more than 3 inches long. If left till they are too long to be taken with a heel—that is to say, till they are become hollow stemmed, they will not root. Fill 3-inch or rather smaller pots with loamy soil, put a little sharp sand in the holes made for a cutting, and fix the latter firmly. Close frames and a moist bottom heat are not desirable, the cuttings rooting most readily when set not far from hot-water pipes, or on an old fashioned flue in a moderately warm house. Cuttings thus raised and given one shift would make fine plants by the middle of May, but later rooted plants do not require a shift. Dahlias can also be easily raised from seed, though a stock of named plants well selected is much to be preferred to seedlings, many of which are seldom worth garden room. Sow the seed in pans, place these in a fairly brisk heat, cover with squares of glass. Shade and keep the soil uniformly moist. When the seedlings are of good size, and before they spoil each other, either place singly in 3-inch pots or prick them out 4 inches apart each way in boxes of good soil. The plants in either case would transplant readily, and flower freely this summer.

Cannas.—These are among the noblest of bedding plants, and suitable alike for massing or for associating with other plants. Not only is their foliage of a highly ornamental character, but the flowers are also very effective. The dwarf hybrids are particularly good, the flowers of these almost rivalling Gladioli in size, the colours also being very bright and good. In order to be sure of the seeds germinating quickly and well they must be soaked in water till they are swollen to double their original size. This may take place in a day or two, or it may be three weeks before they are sufficiently swollen and soft to place in soil. Bottles of water are most to be preferred, the seed being less likely to be left dry in these, and they may be either plunged in a brisk bottom heat or stood in the evaporating troughs or hot-water pipes. Sow the swollen seeds singly in 3-inch pots filled with moist warm soil, and plunge in a moderate strong bottom heat. When these pots are filled with roots shift into 6-inch pots, using a rich loamy compost, and with the aid of a little heat strong plants will be ready for bedding out early in June.

Clumps that have been kept through the winter may be started in heat as advised in the case of Dahlias, and when the growths are 2 inches or rather more in length, split up and divide so as to reserve a few strong roots with each shoot. Potted off singly they will soon become re-established, and a good stock of plants will be the result.

Pentstemons.—In order to be certain of perpetuating good named varieties cuttings ought to have been rooted last autumn, wintered in cold frames, and prepared for bedding out in April or May. Seedlings, however, are quite as beautiful as named varieties, a single packet of seed giving a large number of plants. Sow the seed at once on the surface of well prepared pans of soil. It is a good plan to moisten the latter prior to sowing the seed, covering lightly with fine soil. Place in a frame over a hotbed or in a fairly brisk heat, cover with squares of glass, and shade heavily till the seedlings appear. The latter being early, pricked out in pans or boxes of good fine soil, and kept for a time in gentle heat, will soon be large enough for hardening off, and if planted out in beds or borders of well prepared soil by the middle of May a fine display will be made this season.

Antirrhinums.—These should be raised from seed as advised in the case of Pentstemons, and, in common with the latter, will not prove very showy if the seed-sowing is much longer deferred or the seedlings are neglected. Antirrhinums can be had in separate colours, and by good treatment will make a grand display, a dry season not militating severely against them. The best whites are particularly effective, and serviceable for cutting from.

Sweet Peas.—Where many cut flowers are required early Sweet Peas ought always to be raised under glass and planted out. The newer varieties are particularly good for cutting, and seeing that the seed is dear and distributed in small quantities these, in any case, ought not to be trusted in the open ground. Fill the requisite number of 3-inch pots with good loamy soil, and in each sow seven or eight seeds. These germinate surely and quickly in gentle heat, but the plants ought soon to be hardened and planted with their balls of soil and roots intact where they are to flower. Rows or patches of seed of the common varieties may also be sown in the open at much the same time as the earliest garden Peas. Grow plenty of the old white, and abundance of a good scarlet variety is always appreciated.

Mignonette.—Much that has been advanced concerning Sweet Peas is also applicable to Mignonette. Enemies of various kinds render it next to useless to sow seed early in the open, but a few dozen plants, raised in small pots and planted in good soil before they become badly root-bound, will give off early spikes of flower, and perhaps keep flowering strongly all the season. Garraway's White ought to be grown everywhere.

THE BEE-KEEPER

HIVES WITH TEN STANDARD FRAMES.

It is always pleasing to have a critic "turn on the search light in a friendly spirit," as reflected by "G. H." (page 63). This feeling I reciprocate. More light on this subject will be welcomed by all bee-keepers, as it is only by discussing the various ideas that continually spring up among the apiarians who are readers of the *Journal of Horticulture* that we are able to keep in touch one with the other. I will at once state that I do not wish to infer that the system of bee management advocated in these pages is the only one that can be profitably adopted; but having followed the system for many years with a fair amount of success I have no hesitation in recommending others to try it.

"G. H." is somewhat difficult to follow, as in his previous remarks (page 619) he says, "If we want to take as much surplus as 250 lbs., and leave 100 for stores, we must go in for larger hives;" now he says, "30 lbs. is sufficient for winter stores." One is tempted to ask the question, Is the former theory or practice? as from his own showing 70 lbs. of stores would be useless in the hive. I thoroughly agree with this contention; but why create a large hive for holding stores that are useless? If that amount were stored in supers it might be utilised in many ways. This is the great advantage of the doubling system, all the honey that it is possible to obtain being secured in saleable form.

USING OLD COMBS.

Some bee-keepers, including "G. H.," have an objection to using combs that may at some time or other have been used in the brood nest, and contend that the honey is not so good as that obtained from newly built combs which never contained brood. That this is a fallacy I have not the least doubt. The seasons are too short, and the time of the bees too valuable to waste over building new combs when some good old tough ones are at hand that will not break down when passed through the extractor. New combs require very gentle treatment, or they will do so.

It does not matter in the least whether the combs are white or brown for extracting purposes, the sample of run honey will be as good from one as the other. A good stock of old combs is the sheet anchor of profitable bee-keeping. And to show that I do not advise others to do what I do not practise myself, I may say that I have several hundreds in stock which have all contained brood at one time or other. These will all be used for extracting purposes in due course. The sample of honey will be as good in colour and flavour as from newly made combs. The plan I follow is a great saving of labour to the bees, which anyone may prove for himself, by giving them guide combs or full sheets of foundation, and note the result.

If full sheets of foundation are required annually it would prove a serious item of expenditure in a large apiary. In contrast to this place an empty brood comb over a strong colony in the height of the season, and see how soon they will have it cleaned and ready for storing honey. But if we want "honeycomb of spotless whiteness" then new combs must always be used; if they are at all discoloured the cappings will not be white, and will then be only

third-rate in quality. It will not be the honey that will be affected, only the comb. The honey will be found to be equal in quality to that obtained from white combs.

SYSTEM IN BEE-KEEPING.

In bee-keeping it is an advantage to work on certain lines, and have a system in managing all the details pertaining to the industry. I recommend the standard frame because it is now well known, and is generally recognised throughout the country. This simplifies matters when speaking or writing of a frame hive.

It is of little consequence whether the frames are 2 or 3 inches deeper or longer, quite as good results will probably follow by either; but if good results can be obtained from a recognised size such as the standard frame (and I contend that there can) it is much better to keep to the one size than for no two bee-keepers to have their frames alike.

The system advocated of confining the queen to ten frames and supering with frames of the same size or shallow frames, now much used by some bee-keepers, or by crates of sections, one and all have the same effect on the colony. The bees will not store their surplus honey in the brood nest if ample space is provided in supers. I have often had sixty-three sections on a strong colony of ten frames at one time. These require to be well finished before removal. With standard frames for extracting it is different. If three parts of the cells are sealed over it will be ripe enough for extracting.

It would be an advantage if correspondents would state the size of their frames and hives when speaking of large hives, as the hive mentioned by "G. H." as containing "twelve frames 20 inches by 8½ inches" is not so large as the hive he condemns when doubled. The latter system, too, provides a ready means of raising young queens, without which no apiary can be successful.

"G. H." cannot be serious when he assumes that it was owing to the hive having standard frames in the same apiary as the above that no surplus was stored. The cause may be summed up in one word—"Management."—AN ENGLISH BEE-KEEPER.

[Referring to the above, it may be interesting to readers of the *Journal of Horticulture* if "G. H." would state the dimensions of his large hives, and his system of working them for run honey, as the hive recommended by "An English Bee-keeper" when doubled for extracting purposes holds twenty frames if required, which is large when compared with many hives.]

HONEY AND HIVES.

I AM sending off to you a sample of honey. The section has been one in the number that have taken three prizes, the first at Howden, also the first at Goole, and the second at the Great Yorkshire. The candied honey has taken two prizes in strong competition. I have found large hives far the best. I have the friendliest feeling for "An English Bee-keeper," and should like to pay him a visit, and to have a return visit from him to compare notes.—S. REMMER, *Knedlington Manor*.

[The sample of honey in the comb is excellent in colour and consistency, while the flavour is good. Unfortunately the section was smashed, but enough remained to show that it was well finished, the cappings being thin, honey of good colour, and in admirable condition for present use, thus showing that the honey was well ripened before its removal from the hive, and had since been kept in a suitable temperature which had prevented granulation. This is a fact that should always be kept in mind, when honey becomes candied in the comb (usually caused by being stored in too low a temperature) it is useless for table.

The granulated sample is also of excellent quality (evidently collected from white Clover), being of good colour and fine in the grain. The aroma is not so pronounced as in some samples we have tasted, but the sample is highly creditable for the season. The "get up" of both samples is good, the section being double glassed with lace paper edging, which gives it a very neat appearance, and also protects the comb from damage.

The run honey was put in a screw-top white glass jar, and neatly labelled "Pure Honey." We think it would be an advantage if all bee-keepers would label their produce "Pure English Honey," with their name and address; this would be a guarantee of its purity.]

AMERICAN FRUIT IN VIENNA.—Apples and Pears from the United States and Canada have been selling on the Vienna market, the first at from 5d. to 8d., and the latter from 3d. to 1s. per kilog. The quality is good, the exporters fully understanding that only good wares would sell at a profit. The fruit growers of Great Britain are therefore, says a contemporary, not alone in experiencing the competition of the American in the home markets. This may, this season, have been enhanced by the enormous fruit crop of excellent quality harvested in America, accentuated by the smallness of the crops on the Continent.

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

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•• All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Lycaste Skinneri (*J. C.*).—The Orchid flower sent is that of *Lycaste Skinneri*, a fairly good form and flowering at its correct season. The book you mention contains an excellent list of Orchids, with lucid descriptions and very well done figures of a great many species, but owing to the great scope of the work the cultural notes are necessarily short. No separate book that you may purchase can contain full cultural details such as are given in the horticultural press, while any special subject where you may be at a loss we shall have pleasure in assisting you.

Apple Tree Twigs and Branches Diseased (*F. W. C.*).—The "pieces of Apple stems" are a "sight," the twigs being smothered with mussel scale (*Mytilapsis pomorum*), beneath the "shells" of which are numerous eggs of the insect, which is now for the most part dead; but the eggs will develop fresh "scales" in the course of a few weeks, and these render the disease worse. We were pleased to find an egg of the true or winged male—a rare occurrence—and it is already developing nuclei, with antennae discernible. The branch has "something in it," and more than it can hold, for the "fruits" of the canker fungus (*Nectria ditissima*) are breaking through the bark in the finest crop we have ever seen. Nothing could be better for settling the vexed question as to its being the cause of the disease, for here (in your specimens) we have it on clean living bark, and the scar follows as a consequence. The "fruits" are distinctly visible to the unaided eye, and appear peeping through the bark as reddish brown pimples. We are extremely obliged to you for the specimen, and will see if we cannot procure a sketch of it and some account of the parasite for publication in our columns. In the meanwhile wash the tree or trees with a caustic solution—namely, 1 oz. caustic soda, 98 per cent. purity, and 1 oz. commercial potash (pearlash), water 1 gallon. Dissolve the caustic soda in a pint of hot water by itself, also the pearlash by itself in a similar amount of water, then add the last to the former, and the remainder of the water hot. When at a temperature of 130°, not more, and not under 120°, apply with a clean half-worn paint brush, taking care to reach every part of the tree, wetting every particle of the stems, branches, and twigs, but not more, as running of the solution down to the roots may injure them. Choose a fine day for the operation, when the trees are dry and not frozen, and do it as soon as possible, at any rate before the buds begin to swell; but if done now you will get at the "fruits" of the canker fungus, and the solution will sink into the cracks and destroy any mycelium it reaches. The solution will clear the tree of its overgrowths of lichen and moss, kill the scale and their eggs, leaving the bark clear and smooth. It will not, however, restore the dead parts of the tree killed by the canker fungus to life; those you must cut away and burn, dressing the wounds on any living branches with the following composition:—Dissolve 1½ lb. softsoap by boiling in a gallon of boiling water, remove from the fire, and add while boiling hot (not on the fire) half a pint petroleum, and stir briskly till thoroughly amalgamated. Procure some clay, dry it, then pound it to powder, and add enough of this to the emulsion to form a creamy composition, which apply with a brush to the wounds, coating them so as to make level with the bark. This will do something for the canker fungus mycelium, and better encourage growth of new bark over the wound.

Orchids (*A. McL.*).—Your card is sent to the author referred to, who will probably write to you on the subject if he can do so usefully. We are unable to give the desired information.

Mushrooms and Carrots (*Colonel*).—The more Carrots consumed by horses the less suitable is the manure from the stables for the production of Mushrooms. It has been found that when Carrots were largely used Mushrooms could not be grown in anything approaching a satisfactory manner. The subject, and most others, is treated in "Mushrooms for the Million," post free 1s. 2d., from this office. All persons who experience difficulty in growing Mushrooms should read the work attentively.

Blue Cornflower (*W. W.*).—London's "Encyclopaedia of Plants" says, "It is found everywhere throughout Europe on gravelly soils;" and in "The Wild Flowers of Great Britain" it is stated to be "A common weed in corn fields, where it is met with all over the country." We know of its having been found in Scotland, where it is known as "Blue-bonnet;" in Wales, where it is called "Crammenog yr yd;" and in Ireland, where it is termed "Gormon." The remark had reference to the Midlands, and was founded on observation. We are much obliged for your note stating that you "have seen the fields actually blue with it near Blair Athol in Scotland."

Ammoniacal Liquor and Wireworm (*P. H.*).—Gas liquor will kill wireworms, but the difficulty is to reach them with it at this time of the year, as they are so deep in the soil, while if not used until sowing time there is danger of injuring the plants. It is best used, about 5 gallons per rod, a fortnight before sowing the seed, and to prevent loss of ammonia point it into the soil with a fork. If used after the plants appear dilute with five times the quantity of water, and in using pour it between the rows, not over the plants, a gallon per square yard being a good watering. If it be Carrot grub you mean by wireworm, supply now or as soon as the ground is thawed and in good working order 3½ lbs. kainit per square yard. This is useful against Onion grub, but there must be means taken to prevent the flies depositing their eggs, as they often come a considerable distance, and in the plants the grubs are not easily reached.

Chrysanthemum Buds (*S. S.*).—What you ask for have appeared in the form of illustration, and you will find them in Mr. Molyneux's popular work on the Chrysanthemum. A "crown" bud is a bud that forms at the apex of a shoot, and very soon two or three growths issue below it and grow far beyond it if permitted to do so, the bud then perishing. It, therefore, in a natural way does terminate growth. If the bud forms in May it is the "first crown;" if growths extend and another bud forms in July it is a "second crown;" or if it form in August, which is a better time, as then, if the surrounding growths be promptly removed, the bud receives the support which they would otherwise appropriate, and under good culture develops into an exhibition bloom in November. All buds which form in the crowns of the plants, no matter when, and other growths break from just under them, and would, if permitted, extend beyond them, are crown buds. Later the growths are of a different character. A bud forms as usual, but instead of growths breaking from its base, other buds cluster round it. These may or may not be removed, but whether they remain or not the growth of the plant terminates in the largest central bud, and this is consequently the "terminal." The blooms are, as a rule, smaller than "crown" buds, but often neat and attractive. We hope the matter is now clear to you, though it may possibly be referred to again.

Zonal Pelargoniums Diseased (*Constant Reader*).—The plant has gone off by a disease closely resembling that known as "sleepy disease," "drooping disease," and "black stripe" in Tomatoes. The fungus, which is the cause of the disease, attacks the plants at the roots and ascends the stems, the hyphae growing between the bark and wood, passing into the petiole of the leaves and causing them to die from below upwards. These parts, however, and the tender parts of the shoots die the soonest, so that the plant appears to go off from above downwards. The disease is a very old one, frequently sweeping off whole pots and pan-fuls of cuttings, and very disastrous to plants when a year old, even plants in beds not escaping. Some varieties are more prone to it than others. It is generally found when the plants are grown in soil containing a large amount of vegetable matter, and kept too moist. The fungus may be seen as small black patches where it has broken through the cuticle in somewhat large and aggregated pustules, which are whitish in colour, and the minute blackish olive heads are the easier seen on that account. It is *Sporocybe byssoides*, *Bon.*, and has a nasty habit of causing young growths of Ivy to turn black and die, sometimes doing the same with Box, and too often for Clematis. We have found quicklime to act well when it has been mixed with the loam some time in advance of using, as this reduces the organic matter, and the plants are supplied with nitrate of lime instead of having the fungal germs placed directly in contact with their roots. The lime should be air-slaked chalk-lime, dry and floury, employing about 5 per cent., or one-part lime to twenty parts of turfy loam. There were some mites on the roots, full-grown, eight-legged specimens, between the bark and wood on the root-stem, and appeared quite at home. Perhaps they had got there through the fungus having ruptured the bark. Then there was a creature about one-third of an inch long, with a black head and grand pair of jaws, but whether it was making a meal of the mites we could not make out. It, however, was an apparently carnivorous species, therefore not hurtful to the plants. We can only advise the destruction of the affected plants, and particular care in respect to soil and watering.

Pruning Potted Maiden Apricot, Peach, and Nectarine Trees (B. D. R.).—The proper method is to cut the trees down to the point marked in your sketch A, shorten the two pairs of side growths to about half their length, or, say, the lower to 6 inches and the upper ones to 3 or 4 inches. Next year take a shoot from the top and train it upright, pinching it at 12 inches, and if it break again allow growths to 6 inches, then pinch. Stop the side branch growths at 6 inches; second growths to 3 inches, and in that way you may get as fine pyramids as need be, it being simply a matter of shortening the leader and getting side branches as you go along each year. By proceeding on the lines marked out by B in your sketch you will get a fairly good pyramid, but the vigour will in a few years increase in the upper part at the expense of the lower and weaker, the tree branches developing into a standard, as you say. There is no difficulty in pruning standard Peach trees; it is a question of thinning in summer to prevent overcrowding of the foliage, removing very strong and very weak shoots, retaining the sturdy and short-jointed for bearing.

Garden Soil Infested with White Insects (A Very Old Subscriber).—Had you sent a little of the soil containing the insects we might have been able to tell you what they are and to advise more definitely. As you have tried "quicklime (a heavy dressing) salt, and soot," all excellent dressings for destroying ground pests, you may use gaslime fresh from gas works at the rate of 4 tons per acre, or 56 lbs. per rod, or a little less than 2 lbs. per square yard, but upon the distinct understanding that it be spread evenly and left on the surface for six weeks before it is dug in. Make no mistake in this matter, and it will not make any about the pests in the soil. It ought to be applied in the autumn, or at once, so that it can lie on the surface as stated. As you may not be able to wait six weeks you may use half the amount of gaslime, 2 tons per acre, 28 lbs. per rod, leaving it on the surface three weeks and then work into the soil by digging with a fork, taking small spits. This will usually banish, if not kill, most ground pests, and without prejudice to the crop following. If you cannot use the gaslime apply 3½ lbs. of kainit per rod, distributing evenly before the middle of February, or as soon afterwards as the ground is thawed. This will not injure anything in the way of trees or plants, and it will make an end of most grubs. In putting in crops employ 3½ lbs. of dissolved bones, dry and crumbling, per rod, and when the plants are growing apply 1½ lb. nitrate of soda, finely crushed, per rod. This management ought to give you abundant crops where you can simply grow nothing on account of the insects.

Gros Colman Grapes Cracked at the Footstalks of the Berries (W. W.).—The berries are in a sad condition from the cracking around the footstalks, and covered there with a mould—a fungus, *Aspergillus glaucus*, *Link*—the conidial condition of the higher form known as *Eurotium herbariorum*, *Link*. The fungus is found on fruit, branches, leaves, and all kinds of decaying organic matter, and wholly regarded as a saprophyte; but that does not mean that it will not attack fruit other than in a state of decay, for when a fruit has ripened it is practically dead, and the least flaw in the skin of a Grape or other fruit is sufficient to give the needful access to the fungal germ-tube, and then decay proceeds rapidly. Whilst the skin of the berries is intact the fungus has no power to break it down, but the presence of moisture for any length of time thereon so weakens the cuticular cells that the germinal tubes easily pass through the skin. The cause of the cracking was no doubt the great quantity of rain in the autumn and until recently continued, the soil being heavy and surcharged with water, and the berries thus gorged with fluid simply burst their skins. This in a dry atmosphere is at the nose, and in a moist one around the footstalks, at least such is our observation. Keeping the houses damp in the summer time to prevent red spider would not cause the Grapes to crack after they were ripe. It is the wetness of the border and also that of the house recently which has caused the cracking or decay of the berries at the footstalks, for there is the mould on several of the berries without any cracking of the skin. More air—some constantly—would no doubt have made a difference, as it was the accumulated moisture on the berries that provided favourable conditions for the growth of the fungus.

Names of Fruits.—Notice.—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. They should be sent on the first indication of change towards ripening. Dessert Pears cannot be named in a hard green state. (J. P. A.)—No person living could name the Apple in its crushed and semi-decayed state. In size and shape it resembles Old Nonpareil. (T. W.).—1, Cornish Aromatic; 2, Royal Russet; 3, The Queen. (L. C.).—Tyler's Kernel. (A. M.).—1, Court Pendu Plat; 2, Golden Noble; 3, Cox's Orange Pippin.

TRADE CATALOGUES RECEIVED.

F. G. E. Bonnett, Heathfield, Sussex.—Seeds.
W. Bull, 510, King's Road, Chelsea.—Seeds.
B. R. Davis, Yeovil.—Begonias.
Dobbie & Co., Rothesay.—Farm Seeds.
Dobie & Mason, 22, Oak Street, Manchester.—Seeds.
Fotheringham & King, Dumfries.—Seeds.
J. Turner, North Street, Wetherby, Yorks.—Seeds.
Webb & Sons, Wordsley, Stourbridge.—Seeds.

COVENT GARDEN MARKET.—JANUARY 27TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½ sieve	1	3	2	6	Lemons, case	11	0	14	0
Filberts and Cobs, per 100 lbs. 45	0	50	0	0	Plums, ½ sieve	0	0	0	0
Grapes, per lb.	1	0	1	9	St. Michael Pines, each ..	3	0	8	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Asparagus, per 100	0	0	0	0	Mustard and Cress, punnet	0	2	0	4
Beans, ½ sieve	0	0	0	0	Onions, bushel	3	6	4	0
Beet, Red, dozen	1	0	0	0	Parsley, dozen bunches ..	2	0	2	0
Carrots, bunch	0	3	0	4	Parsnips, dozen	1	0	0	6
Cauliflowers, dozen	2	0	3	0	Potatoes, per owt.	2	0	4	9
Celery, bundle	1	0	0	0	Salsafy, bundle	1	0	1	0
Coleworts, dozen bunches ..	2	0	4	0	Seakale, per basket	1	6	1	0
Cucumbers	0	4	0	8	Scorzonera, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Shallots, per lb.	0	3	0	0
Herbs, bunch	0	3	0	0	Spinach, pad	0	0	4	0
Leeks, bunch	0	2	0	0	Sprouts, half sieve	1	6	1	9
Lettuce, dozen	1	3	0	0	Tomatoes, per lb.	0	4	0	0
Mushrooms, per lb.	0	6	0	8	Turnips, bunch	0	3	0	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (various) doz.	6	0	36	0	Ficus elastica, each	1	0	7	0
Aspidistra, dozen	18	0	36	0	Foliage plants, var. each	1	0	6	0
Aspidistra, specimen plant	5	0	10	6	Genista, per dozen	10	0	15	0
Azalea, per dozen	24	0	42	0	Hyacinths, large, per dozen	6	0	12	0
Chrysanthemums, per doz.	6	0	12	0	(Roman), doz. pots	6	0	8	0
" per plant	1	6	2	0	Lycopodiums, dozen	3	0	6	0
Cyclamen, per dozen	9	0	18	0	Marguerite Daisy, dozen ..	9	0	12	0
Dracæna, various, dozen ..	12	0	30	0	Myrtles, dozen	6	0	9	0
Dracæna viridis, dozen ..	9	0	18	0	Palms, in var. each	1	0	15	0
Erica, per dozen	9	0	12	0	(specimens)	21	0	63	0
" hyemalis, per dozen	10	0	15	0	Poinsettia, per dozen	9	0	12	0
Eucalyptus, var., dozen ..	6	0	18	0	Primula sinensis, per dozen	4	0	6	0
Evergreens, in var., dozen	6	0	24	0	Solanums, per dozen	9	0	12	0
Ferns in variety, dozen ..	4	0	18	0	Tulips, dozen pots	6	0	9	0
Ferns (small) per hundred	4	0	6	0	" in boxes, per dozen	0	8	1	6

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Anemones, dozen bunches ..	2	0	4	0	Mignonette, dozen bunches	3	0	6	0
Arum Lilies, 12 blooms ..	3	0	6	0	Mimosa (French) per	1	0	1	6
Asparagus Fern, per bunch	2	0	2	6	bunch	1	0	1	6
Azalea, per dozen sprays ..	0	6	1	0	Narciss, White (French),	1	6	2	6
Bouvardias, bunch	0	6	0	9	dozen bunches	1	6	2	6
Carnations, 12 blooms ..	1	0	2	6	Narciss, Yellow (French),	2	0	4	0
Christmas Roses, 12 blooms	1	0	1	6	dozen bunches	2	0	4	0
Chrysanthemums, dozen	3	0	9	0	Orchids, various, per dozen	1	6	12	0
bunches	3	0	6	0	blooms	1	6	9	0
Chrysanthemums, 12 blooms	2	0	9	1	Pelargoniums, 12 bunches	6	0	3	0
Daffodils, dozen blooms ..	0	9	1	6	Pyrthrums, dozen bunches	1	6	3	0
Eucharis, dozen	3	6	4	0	Roses (indoor), dozen ..	1	0	2	0
Gardenias, dozen	4	0	6	0	" Tea, white, dozen ..	1	0	2	6
Geranium, scarlet, doz.	6	0	9	0	" Yellow, dozen (Niels)	6	0	9	0
bunches	6	0	9	0	" Red, dozen blooms ..	2	0	3	0
Hyacinths (Roman), 12	0	6	1	0	" Safrano (English),	1	0	2	0
sprays, and per bunch ..	0	6	1	0	dozen	1	0	2	0
Lilac, White (French), per	3	6	5	0	" Pink, per dozen	3	0	6	0
bunch	3	6	5	0	Smilax, per bunch	3	6	7	0
Lilium longiflorum, 12	6	0	8	0	Snowdrops, dozen bunches	1	0	2	0
blooms	6	0	8	0	Tuberose, 12 blooms ..	0	6	1	0
Lily of the Valley, 12 sprays,	0	9	1	6	Tulips, dozen blooms ..	0	6	1	6
per bunch	0	9	1	6	Violet Parme, per bunch ..	3	0	4	0
Marguerites, 12 bunches ..	4	0	6	0	" per doz. bunches ..	1	6	2	0
Maidenhair Fern, per dozen	4	0	8	0	(French), per dozen	1	6	2	6
bunches	4	0	8	0	bunches	1	6	2	6



PREPARING FOR THE LAMBING SEASON.

No excuse is offered, and we think none is required, for again presenting to our readers a few hints and a few warnings to that they may lay to heart before this critical time for the flock master arrives.

As so far we have only been able to wrest from Nature one corn harvest, we have still but one crop of lambs per year, and that being a crop of great value it behoves us to use all diligence and skill to preserve these young lives, and to prevent as far as in us lies undue mortality among the ewes. We have just read with great pleasure and profit an article in the last issue of R.A.S.

Journal on the "Lambing Pen" by Mr. Harold Leeney. He has gathered many practical details from practical men, and putting the whole into an interesting form, has done good service to agriculture.

He begins by giving some excellent hints as to the condition of the ewes and ram in the autumn, and urges extra care and extra feeding for the last six weeks before lambing. There are always some weakly ewes which want the best of food to carry them through their time of trial, and all need some milk-producing diet.

The construction of the lambing pen is of the first moment. Shelter there must be, but not too much of it. The sheep by nature is a hardy animal, yet it is quite possible that even a sheep may have too much of the north-easter. Hurdles and straw make capital pens; there must be a bit of roof, well thatched, to turn continuous wet—we have seen where straw was plentiful a wall of it built all round the fold. Other material may be employed, but there is nothing like straw yet. The fold should be large enough to prevent overcrowding, and some shelter must be provided for the man or men on night duty. Some farmers provide the shepherds with extra refreshments for the nights, and we think the master is the gainer by so doing.

Supposing the lambing is carried on in a permanent building (which at the best is but a bad plan) the greatest care must be taken to keep the floor sweet and wholesome. Dry earth mixed with lime and ashes is antiseptic up to a certain point, but where temporary shelters can be got, and the fold changed every year, there is a much greater prospect of a healthy lambing season. Always keep a few pens ready for the reception of invalids that require a little extra attention.

No offensive matter must be allowed to remain for one moment in the lambing pens, and it is well to forbid the shepherd to have anything to do with dead bodies—there is no knowing how easily disease is conveyed by a man from a dead to a healthy sheep. The pens must be kept absolutely quiet—no dogs, no strangers, and it is well to bring the forward ewes up at nights, some days before the lambs are due.

A shepherd never knows what a day or a night may bring forth, and it is the wisest plan to have all medicines and disinfectants and appliances at hand. First about himself—he must pay the greatest and most minute attention to the disinfecting of his own hands—constant washing with carbolic soap in a metal bowl, and he should take care that his nails are well cut back, as they harbour dirt and infection, and may unwittingly give many a scratch. Carbolic oil, disinfecting fluid, a bushel or two of lime, a few penny sponges, and pieces of soft rag are all things he must have, with a little tin to heat milk for weakly lambs. A sauce bottle with a long neck makes a capital vehicle from which to give drinks. A bottle of cordial for weakly animals, a bottle of scour mixture, another of laudanum, and another of castor oil. There are other things that may be added, but these are what are needed daily and hourly.

There are two distinct classes of shepherds. Those men who know when a ewe needs assistance in lambing, and those who are for ever meddling, and thus retarding the efforts of Nature. No books or diagrams will help a man much—it is only by practice and careful observation that a good shepherd is made. Before offering any assistance to a lambing ewe the man must anoint not only his hands but any instrument he is likely to use with carbolic ointment, and a dressing of carbolic oil used for each ewe after lambing is always a safeguard.

If after properly cleansing a ewe is observed to strain she should at once have a little gruel with a dose of laudanum every two hours till the trouble is subdued.

Sometimes there is considerable loss of lambs from overlaying. If a ewe is weak she is very liable to drop rather than lie on her lamb; she is really too ill and weak to know what she is doing. Also when the weather is very cold the lambs will lie so closely to the ewes that if the latter move slightly a lamb's head may be

entirely covered by thick wool, and so quickly smothered. We know farmers who always have triangular pens on purpose to avoid overlaying; the lambs get in the corners, and so escape. These pens are best made by fixing hurdles radiating from a central point. A few short hurdles made on purpose just the right length make capital gates to the pens, and eight hurdles plus eight gates will make eight pens.

If a lamb scour it is generally the fault of the dam, and she should have a dose of salts with a little gruel and ginger, the ewe being milked by hand, and her lamb suckled on another ewe for a day or two.

Lambs often get swollen joints. This is caused by variations of temperature (hot days and frosty nights). A dry lair and a dose of castor oil may benefit; but if really bad a cure is a slow as well as difficult matter.

WORK ON THE HOME FARM.

We are having a little frost at last, and though it is not very severe and does not look like lasting, we are thankful for it, such as it is. Much more is required to make a good spring mould of the sodden land. Those who have much manure in the yards are now getting it led out. We have nearly all ours out either in hill or ploughed in for Potatoes. We are now carting drain pipes for some underdraining on the eve of commencement. It is very heavy carting, as the land is exceedingly wet, and the necessity for the work very evident.

Should the frost continue threshing days will be more satisfactory. Stack sides have so seldom been dry of late that grain has lacked the good condition and dry handling that it should now have. Good Barleys are getting much scarcer, but maltsters seem able to buy plenty of foreign, so there is no better demand. Grinding Barleys are almost unsaleable, and are now being freely fed to stock. This has had an effect on the Maize trade, and should influence the values of cakes.

We see a few early lambs, but this district is too far north for general lambing yet. There will be no excuse for giving ewes too many Turnips this season, for there are very few for them. One neighbour will not have a Turnip left by March 1st, and he generally has his hoggs on roots until the latter end of April. We are not so badly off as this, but we have increased the cake to the sheep nearly double, and this has lessened the consumption of Swedes. Sheep must pay for an extra allowance of cake this year.

The same applies to cattle, for so few are being fed off, owing to root scarcity, that spring beef, and therefore very fresh stores nearly beef, are sure to meet a good market in April. The dairy cows must not be stinted as to diet now; butter is a better price than it has been since last winter. It is easier to let a cow run off in her milk than to get it back again. We have found it necessary to have each cow's milk carefully measured at intervals to keep a check on the feeding as well as milking of the herd. Some large milk producers have the milk measured weekly, but this seems to us oftener than is necessary.

Pork is as cheap as ever; the low price has now continued longer than is usual, but we notice that American imports are falling off, so the swing of the pendulum may be nearer than we expect. Small pigs at 10s. each might be a good investment, as pig food is sure to be cheap for another six months.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1897. January.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 17	30.01	32.8	32.0	W.	37.0	36.1	2.4	62.2	30.5	0.018
Monday .. 18	30.104	25.2	25.2	W.	36.0	36.0	23.4	44.6	20.8	—
Tuesday .. 19	30.071	33.9	33.1	N.	35.9	37.3	24.8	47.2	20.2	0.011
Wednesday 20	30.157	33.2	32.2	N.E.	35.8	34.0	33.0	34.9	31.1	0.010
Thursday .. 21	29.976	31.3	31.3	N.	35.2	34.0	29.4	38.0	28.3	0.021
Friday .. 22	29.386	33.9	32.6	N.	35.1	37.0	30.1	67.1	26.1	0.072
Saturday .. 23	29.682	27.7	27.3	N.	34.9	32.9	25.1	61.4	25.4*	0.015
	29.911	31.1	30.5		35.7	35.5	27.9	50.8	26.0	0.147

* Covered with snow.

REMARKS.

- 17th.—Fine, bright, and sunny all day; freezing in afternoon, and bright night.
 18th.—Fair early, and slight mist; a sunny afternoon and fine bright night.
 19th.—Overcast early; fair at 9 A.M. and up to noon; overcast at 1.45 P.M. and rest of day; slight rain in evening; overcast night.
 20th.—Dull damp air; spots of rain at 8.30 A.M.; generally dull; breezy at 4.30 P.M.
 21st.—Small snow early morning and flakes at 9 A.M.; dull all day and night.
 22nd.—Snow early; bright sun at intervals till noon; snow nearly all the afternoon, but not heavy—total, about 1 inch.
 23rd.—Fresh snow, about $\frac{1}{4}$ inch deep at 9 A.M., and snowing at intervals; sun bright at 11 A.M. and all morning; brilliant at 1 P.M.; total depth of snow, 2 inches; fine night.

A cold week, rather colder than any week since February, 1895, but, of course, not to be compared with the severity of the middle of that month.—G. J. SYMONS.

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Journal of Horticulture.

THURSDAY, FEBRUARY 4, 1897.

CYCLAMENS.

IT was natural to expect that after the memorable battle of Hastings, which completed the Norman conquest of England, William the Conqueror's companions should have shared in the partition of the new conquered territory in the counties immediately adjoining the scene of that fatal field. There were rich lands which reminded them of the Normandy from which they had come, and in truth we find notices of some of them go as far back as the "Battel Abbey roll."

Now Godinton was one of these places. It was assigned to John Godinton, and after many vicissitudes passed by marriage into the family of the Tokes, who were descended from Le Sire de Touque, sometimes written Toke, Tooke, Tucke, or Toc, who also came over with William the Conqueror. The marriage by which it came into the Toke family was that of Joane, daughter of William Goldwell of Godinton with Thomas Toke of Westbere in the reign of Henry VII. on the failure of direct male heirs. Amongst the descendants of this Thomas was one Nicholas, commonly called Captain Toke, who was buried with his five wives in the chancel of the parish church of Great Chart. It is recorded of him that in his ninety-third year he walked to London, being then a widower, to pay his addresses to a lady whom he wished to make the sixth Mrs. Toke, when he was taken ill "and presently died." It continued in the family of the Tokes until 1895, when it passed by purchase into the possession of Mr. George Ashby-Dodd.

Godinton House is situated within one and a half mile of Ashford; the park contains some fine trees, and is noted for a "Chestnut Toll," which is a landmark in the surrounding country. The house is one of those delightful specimens of Tudor domestic architecture, which show how much more beauty was appreciated in those days than in the Victorian era, where show and glitter are more sought after than the quiet and restful beauty which marks these old houses. The hall and staircase are especially beautiful on account of the ancient carved wood, and have several stained glass windows containing the family arms of the Tokes; the drawing-room is also a curi-

ously wainscotted room, with much oak carving. The house is now being considerably enlarged under the superintendence of Mr. Blomfield, the well-known architect, so that nothing will be done, we are sure, to alter the character of the house or offend the eye.

In these days when so many of the gardens of our nobility and country gentlemen are more or less market gardens, where every bit of produce is sold in consequence of the difficulty which is occasioned by the depression in agriculture, it is pleasant to be able to record an instance where the reverse process is going on, for the gardens here have hitherto been of the ordinary commonplace ones which are everywhere to be found, but I am very much mistaken if they will not in a few years present a very different appearance. I found them on my visit in charge of the son of a very old friend, Mr. Frost, whom I have known for the last forty years at Turner's Nurseries, Slough. He used to have under his charge those magnificent specimens of Show and Fancy Pelargoniums which were such marvels of fine culture, and afforded such delight to all lovers of beautiful flowers. Alas! they seem to have had their day, and "Othello's occupation is gone," for Mr. Frost has now under his care Cyclamens and other popular flowers; but I suppose we must not complain. It was hardly possible to conceive how any further improvement could be made in the colouring, form, and texture of the flowers raised by Messrs. Hoyle, Foster, and Turner.

Mr. Frost's son seems to be an able and intelligent gardener, and has already begun to make things look differently. A Rose garden is being now formed, Chrysanthemums are well grown, and have already raised somewhat of a commotion at our local shows. Beds of Carnations look well, but the point which most struck me on my visit there lately was the splendid house full of the Persian Cyclamen. There is no flower in which I think a more marvellous change has taken place in the last twenty years than this. I well recollect the time, very many years ago, when it was considered one of the most difficult flowers to propagate, and old Donald Baton thought he had conferred a great boon upon gardeners when in the pages of the Journal he told them to cut up their roots in order to multiply their plants; moreover, we were directed to shake them out of their pots after flowering, and plant them in the open ground. Now all this is changed; they are raised in immense numbers from seeds every year, and with careful management they bloom in twelve months after the seed-sowing, and they not only have increased in size but exhibit great variety in their colouring. They are to be found from pure white to the deepest crimson, and various shades of pink, salmon and rose. But amidst all this improvement there is one thing we must regret; the flower used to be called *Cyclamen persicum odoratum*, but the delicately sweet perfume is very rarely to be met with now.

There is no firm that has been more successful with this flower than that of Messrs. Sutton & Sons, Reading, and the beautiful collection at Godinton Park is from their strain. We used to be satisfied with having our Cyclamens in March and April, but now we get them long before Christmas, and at the time of my visit in the early part of December a long house was filled with about 300 plants carrying about 2000 expanded blooms with plenty of buds to give a succession. Mr. Frost says that he sowed Giant White, Giant Crimson, and Giant Crimson White, and late in February, 1895, some of the plants from that sowing measured 16 inches across with three or four dozen flowers out at once. "My second sowing," he says, "was in February, 1896. It was owing to unavoidable circumstances that I sowed so late as February; the time I prefer for sowing is October, and the plants so raised flower in about twelve months time." This second sowing consisted mainly of Sutton's Vulcan, Butterfly, and Salmon Queen.

He says the culture of the plants is none of the easiest. "I find good loam (which we can get at Godinton), leaf soil, burnt earth or rather wood ashes, Bedfordshire sand, and artificial manure answer for their potting material. We drain the pots well and carefully, also look well after the watering of the plants

in the various stages of their growth, never allowing them to get too wet or too dry. Shading is another great point in their culture; they like a strong light but no sun, plenty of ventilation when in the frames—in fact, we take off the lights in the evening that they may receive the dews, and we make a point of syringing them lightly three or four times a day in the summer when it is very hot. Cleanliness is another great point; we never allow any green fly or thrips, which unfortunately they are liable to, to have any quarter. We give the plants weak liquid manure as soon as the pots are full of roots, and keep on all through the time of their flowering. We keep our Cyclamen house at 45° to 50° by night, and about 55° in the day. Some of our giant flowers measure 2 to 3 inches deep."

I may add to this that one peculiarity about Cyclamens is the one alluded to by Mr. Frost—that they come remarkably true from seeds, showing, I suppose, that they are not hybridised with any other Cyclamen species, but that the varieties now cultivated have been gained by careful selection; thus, for instance, the last valuable addition, the beautiful salmon-coloured variety of Messrs. Sutton, is obtained from a plant which exhibited a tendency to that colour. Another noticeable thing is that the very dark crimson variety Vulcan does not attain anything like the size of the others, nor does it seed so freely. Whether this will be overcome in time it is impossible to say, for, indeed, the progress that has been made hitherto seems to make nothing impossible.

I am, of course, aware that results such as these I have recorded are to be seen in many a nursery establishment, but they are not common in private gardens, especially at the season of the year in which these were found in full flower. We have always associated them with spring flowers, but I think their value is increased when they can be brought to gladden our eyes in midwinter.—*D., Deal.*

PRECEPT AND PRACTICE.

(Continued from page 48.)

"DON'T be inquisitive" was an extingisher frequently applied in my juvenile days to snuff out those sparks of desire for information most boys have who are interested in their work. We need not, do not I think, rake up these embers of the past in a purposeless manner. They have burned sufficiently deep to leave an impression upon us old boys, from which has sprung the desire, now a prominent feature in the *Journal of Horticulture*, to fan the spark into a flame instead of quenching it. Somehow a boy who loves plants has an inordinate desire to find out their names, deriving satisfaction in ratio to their length, or in the difficulty of spelling them. Inordinate I say, it was regarded so then, or why was I led astray when not tripped up in tracking knowledge to its root? Faults on both sides probably, for I may have been—yes, I believe I was—something of a young prig in chattering of how much I knew, not then knowing that every page of our knowledge is but the introduction to volumes where "Finis" finds no place.

Will you, youngest of young brothers, accept the above as a truth and digest the moral? It may, too, save you some painful touches in tender spots. The early troubles of life are very real at the time, however much matured age can afford to smile upon them. My self-imposed task was to learn the names of six plants every day, facilities for which were afforded by copious labelling at this place—my entrance to the gardening world. Difficulties surrounded the start in the pronunciation, proceeding chiefly from the failing above described, by bringing down the weight of ridicule so unpleasant a burden to the sensitive youth. In that garden *Lomaria chilensis* was long known as the Lo! Maria, my unfortunate pronunciation in displaying the profundity (?) of my knowledge. Youthful indiscretion also left an opening for the insertion of such gratuitous information by my teachers as that Rowland's Macassar oil was good for Maidenhair Ferns, and other equally choice elixirs entered into the mysteries of culture.

However, there are happier recollections of this baptism into the gardening world; and what a beautiful world it was in that little corner of sunny Kent, and what an unlimited fund of interest those hard names yielded as time lifted the mists of ignorance. Writing then a fair boyish hand, it was requisitioned during spells of potting to assist in the labelling; a most delightful task, but requiring ample elbow room, and accompanied by all those facial contortions which follow the movements of a boy's hand. But I was soon laughed out of that, and eventually learned to write my

labels rapidly and neatly in a standing position. Now, little chaps, all this chatter is not without a purpose; I want you to practise the same method instead of having to clear the decks for so simple an action. Practise writing labels by holding them in your left hand steadied against the breast, and I trust that you may now and again be permitted by your masters to exercise your hand in labelling.

On this question there is another little matter worth mentioning—viz., there is often too much disparity in a boy's writing as practised with the pencil and with the pen, the former being apt to have a monopoly, to the detriment of the latter. So much may this be the case that I have noted results almost parallel with that of Mr. Toodle's (in "Dombey and Son"), who could write "with chalk." The best illustration I can give you of this is by openly confessing that a master in after years who gave my pencil work in the way of labelling high praise, was so disappointed with a specimen of my penmanship, which he wished to submit for higher inspection, that a pencil-written paper was substituted for it. It should not have been so, considering that on many a winter's night in the bothy I have written for three hours at a stretch, but the fact remained that too often the pencil had been substituted for the pen, hence the evil pointed out for you to avoid.

Times are not what they were when I was a boy. You may be inquisitive now, must be in fact, but neither ostentatiously nor objectionably so. There is nothing that you have to do, or nothing that is done, without a reason. Do not be satisfied with doing your work mechanically, even though you do it well, and in everything endeavour to trace the effect to the cause—that is keep asking the reason why. But do not misconstrue this advice so that you are turned into a veritable little torment. Ask yourself, and probably five questions out of six will upon a little reflection and observation discover themselves to you, whilst the sixth may be settled satisfactorily by seeking at an opportune time for such information as few right-thinking men will deny you.

After the novelty of early duties has worn off a little contempt may arise of some jobs which are legitimately a boy's work. Washing pots, cleaning up the stokeholes, scrubbing out the houses, you may possibly regard as rather mean kind of work. It is not so unless you make it so; if you wash, and clean, and scrub to perfection—Napoleon could not have done more respecting his work, and did not, in fact, always do as much. There is no work even of the humblest kind but which if conscientiously performed is dignified, and confers its dignity upon the worker. Endeavour to feel that this is so, and I trust your endeavours will be rewarded by such encouragement as will leave no doubt in your mind upon the matter.

Presuming that, even at this early stage of a gardener's life, there is no intention of turning back, and taking it for granted that any sufficiently interested to follow these humble efforts on their behalf will certainly not do so, we will now "zigzag" in some practical matters; but it must be understood for once and for all that once started you will—you must—continue with such aids and material for the purpose as the daily duties and leisure hours afford. If I can show to you the ocean of knowledge your thirst should prompt you to keep yourself to the "illimitable," for, as Emerson says, "Welcome ever more to gods and men is the self-helping man." In the matter of plant names, which present some little difficulty, so apparently impenetrable are they upon the surface, we may well here break ground.

Florists' designations need not claim our attention, there being but little danger of your not becoming sufficiently conversant with them in the different phases as opportunity occurs; and as Mrs. Pollock, John Hopper, or the various Glories and Perfections, with other distinguishing or distinguished names fulfilling their purpose, it would be purposeless to dwell upon them, but do endeavour to spell and to pronounce them correctly. Those which have the flavour of a foreign tongue will doubtless as time goes on be more or less familiar to you, but it is sincerely hoped that a Gloire de Dijon will not be a "Glory de John" to you, as it was to an old friend to the end of the chapter. Knowing, as you know, that Dijon is a town in France the rest is sufficiently clear, but you may not know enough French to set yourself up on that pedestal of conceit a comrade of mine mounted to declaim that "Pomme de terre meant Pomme de tater, and anybody could parlyvoo that." Seriously I wish I could invite you to study that elegant language, but as gardeners it behoves us to dig for Latin roots. "Dry old roots too," you will say; well, we will sample a few, which will, I trust, create an appetite for more. Here are some I tasted at your age and found them to be not unpleasant.

Selecting six fairly easy names relating to form—viz., round, angular, pyramidal, long, large, dwarf, and taking them in the order of sequence, the following plants should show their right to the names they bear: *Campanula rotundifolia*, round-leaved; *Passiflora quadrangularis*, quadrangular—four-angled stems; *Campanula pyramidalis*, pyramid shaped; *Pteris longifolia*, long-leaved

(comparatively, see note to come); with *Achimenes longiflora*, long flowered; *Odontoglossum grande*, large; *Asparagus plumosus nanus*—plumosus, feathery; nanus, dwarf. These names clearly convey the character of the plant they are appended to, as do many others which you will gradually become acquainted with. Others there are which do so in a more remote degree, while again there are some members of the different families which beyond the family name they bear display no more character apparently in their distinguishing appellations than we ourselves do, but have, perhaps, the advantage over the human family by its being the means of more distinct recognition.

To prevent a confusion of ideas on this phase of the subject you will bear in mind that descriptive names expressive of size are comparative—viz., used relatively to the family or section of the family to which they belong; thus a giant of one tribe is by comparison but the dwarf to another; for instance, *Ferula gigantea*,



FIG. 23.—*BRODIAEA HOWELLI LILACINA*.

the Giant Fennel, has no affinity in size with *Wellingtonia gigantea*, but each are representative of their types, although the latter is restricted at present to the one member with its varietal sports. Similar simple revelations concerning plant names relating to colour and habit will next be broached; plain enough, I hope, for you—my youngest reader—to take up the matter at once, that it may go hand-in-hand with daily work and nightly recreation, for—

"Are you in earnest? Seize this very minute;
What you can do, or think you can, Begin it."

—AN OLD BOY.

(To be continued.)

BRODIAEA HOWELLI LILACINA.

THE several species and varieties of the *Brodiaeas* are well known to all our readers as flowering plants of much beauty and considerable utility. Some of them are comparatively scarce, whilst others are abundant, and consequently cheap. One of the newest, *B. Howelli lilacina*, is depicted in the woodcut (fig. 23), and was shown by Messrs. R. Wallace & Co., Colchester, at one of the summer meetings of the Royal Horticultural Society last summer. So beautiful and distinct was the variety considered that the Floral Committee recommended a first-class certificate. The form of the flowers is shown in the woodcut, and in this alone the difference from the type is readily discernible. The lower portion or tube of the flower is bright lilac in colour, while the upper portion is pure white.

TUBEROUS ROOTED BEGONIAS FROM SEED.

THE value of tuberous Begonias, both as greenhouse decorative plants and bedding plants, is now fully recognised. Both the double and single varieties are equally useful for either purpose. The doubles, perhaps, find the most favour, because the individual blooms are compact, bright in colour, and attractive. For button-hole flowers the double varieties are hard to surpass, and are frequently grown for furnishing neat and effective flowers for this purpose, as well as affording decorative plants of the highest value. The single varieties produce very large flowers. Good plants of a floriferous character and bushy habit are showy and effective for a considerable period during the summer months in the greenhouse. Among them there is a wide range of colour, including shades of white, blush, yellow, crimson, and red.

Both erect and drooping growers are found among Begonias. The erect growing varieties are obviously the best for pot culture; the drooping for baskets, which may be suspended from the greenhouse roof. With good cultivation and attention in affording due supplies of moisture to the roots during dry weather luxuriant growth will be made. The growths and blooms depend from the baskets in a most graceful manner.

A collection of Begonias is interesting as regards the foliage, which varies in shape and hue, also markings, which render the plants attractive in this way. The more freely the plants grow, provided the growth is made under favourable conditions, the better they flower, as blooms are continually being produced from the new growths. Tuberous Begonias are essentially summer-blooming plants, and by no means can they be made to bloom during winter, or to grow and flower continuously.

RAISING PLANTS FROM SEED.—There is little difficulty in securing a collection of good varieties in a wide range of colour and form by raising plants from seed. The seed is extremely small and requires extraordinary care in sowing, so that by no mishap shall the tiny pinch of dust-like particles be lost in the process of transferring them from the 1s. 6d., 2s. 6d., 3s. 6d., or 5s. packet to the surface of the seed pot or pan. Small seeds like Begonias must have specially prepared surfaces on which to germinate readily and grow freely. Procure clean dry pots 5 or 6 inches in diameter, or shallow pans of larger area. The pots should be half filled with drainage, the pans not needing quite so deep a layer of potsherds or crocks. Keep the drainage clear of soil by a protecting layer of damp moss, or fibre from the compost; on this place the prepared material for sowing the seed upon. This must consist of sweet ingredients—equal parts of fibrous sandy loam, decomposed leaf soil and silver sand, thoroughly well mixed.

In order that the compost may be known to be absolutely free from insects or worms the whole prepared material ought to be scorched on a hot plate or shovel. After this process moisten the compost with sprinklings of warm water, mixing to a pleasantly moist condition. It will then be ready for use. Place it in the receptacles fairly firm, and level the surface with something smooth. It is desirable to still further moisten the compost by standing the pot or pan in tepid water until some begins to rise through the surface, but before this becomes evenly wet, withdraw and allow the soil to drain.

I ought to have stated previously that the material must be riddled fine, especially so on the surface where the seed has to rest. Scatter the seeds evenly. If any attempt is made to cover them, the slightest film possible of sand only should be applied. The seed frequently germinates well without any covering of soil. Cover the pot or pan with a sheet of glass to prevent evaporation, and over that lay paper or moss to darken the soil. The next point is the selection of the position for placing the seed receptacles. Both top and bottom heat is requisite to command success. The best place is a propagating frame in a forcing house or stove where a constant temperature of 65° to 70° is maintained.

Moist surroundings, too, are imperative. Any undue drying of the pots or soil may jeopardise the process of germination. The temperature named just affords that gentle stimulus which causes activity, and in the course of a few weeks if the temperature is regularly maintained many young plants will appear. Not all, however, will do so as early as this, but in due course a large percentage ought to germinate. If moisture condenses too freely on the glass at any period wipe it dry.

The darkening material must be removed immediately the first seedlings appear, but the glass may be kept over the pots or pans until the tiny plants acquire some strength, when it may be gradually removed. The seedlings require pricking out into fresh compost long before they are of sufficient size to handle with the thumb and finger. Their removal, however, may be managed by means of a small notched stick inserted under them to lift them out and place them an inch apart in pans of similar compost. Still afford them the same temperature and moisture.

Cocoa-nut fibre affords a suitable medium for rendering a moist base on which to place the pots and pans. It is easily damped, and readily allows heat to pass through it; but any of this material in contact with the hot-water pipes soon dries. In a measure it then prevents the heat ascending, so this portion must be specially looked to.

Very light sprinklings of water are necessary when the seedlings are first spaced out; but as they grow more may be given with good results, also light and air in proportion, following with an introduction to a cooler temperature preparatory to potting into small pots, shifting on as required until a flowering size is reached. Good plants from seed raised now may be had in flower in autumn, but any tubers that do not attain strength and size enough to flower this season make fine plants the following year.—E. D. S.

CHEMISTRY IN THE GARDEN.

(Continued from page 76.)

SULPHUR (symbol S).—This element is a brittle, solid substance, of a lemon yellow colour. It is found in a free state in nature, and also in combination, in a variety of forms, with other elements. Sulphur is found in a free state in many parts of the world, particularly in those districts where volcanic action is going on. Sulphur combines chemically with oxygen in several different proportions, but the following is the only form we need consider:—One part of sulphur united with three parts of oxygen. This substance is called sulphur trioxide (SO_3), and when combined with one part of water forms sulphuric acid (H_2SO_4). This acid combines readily with alkaline and other bases (e.g., potash, ammonia, lime, or iron) to form sulphates, good examples being sulphates of potash, ammonia, lime, and iron; and it is from one or the other of these substances that plants obtain their sulphur.

PHOSPHORUS (symbol P).—This element is never found in nature in a free state. It can be prepared, however, from compounds containing it, when it has the appearance of a colourless transparent solid substance. Combined with other elements phosphorus is one of the most widely diffused of all the elements.

Phosphorus combines readily with oxygen and hydrogen to form phosphoric acid ($\text{H}_3\text{P}_2\text{O}_8$). From its chemical formula we see that one part of this acid consists of six parts of hydrogen, two parts of phosphorus, and eight parts of oxygen. The acid combines with bases like lime, magnesia, and iron to form phosphates of lime, magnesia, and iron; and these are the forms in which it exists in soils. The amount of phosphoric acid in many soils is very small, and even the most fertile do not contain very large quantities. Phosphorus is taken from the soil by plants, principally in the form of soluble phosphate of lime; and the element is found in them chiefly in the albuminoids and seeds.

POTASSIUM (symbol K).—This element is a soft white metal slightly tinged with pink. It is never found in a free state in nature, but occurs in large quantities in combination with other elements. Potassium unites readily with oxygen to form potash (K_2O), and with oxygen and hydrogen to form caustic potash (KHO). Potash forms one of the alkaline bases, and will therefore combine with acids to form salts. The potash salts are found very widely diffused in nature, some of them (silicates and nitrate of potash) being present in soils, while others occur (sulphate and chloride of potash) in some saline deposits and in sea water.

Potash is found in plants in combination with organic acids. Its use in the plant seems to be to help in the formation of starch, and it is absorbed from the soil chiefly in the form of sulphate and nitrate of potash.

MAGNESIUM (symbol Mg).—This element is a silver-white metal, never found in nature in a free state, but always in combination with other elements. If magnesium wire be strongly heated it takes fire and burns, emitting a brilliant white light, and falls down as a white powder. This powder is magnesia (MgO), an oxide of magnesium, and is formed by the chemical union of oxygen gas from the atmosphere with the metal. Magnesium is found in nature principally in combination with carbonic acid, as carbonate of magnesia, but it also occurs to a lesser extent as silicate, nitrate, chloride, and sulphate of magnesia. Plants do not require a very large amount of this element for their development, and all they need of it is absorbed from the soil either as nitrate, sulphate, or chloride of magnesia.

CALCIUM (symbol Ca).—This element is a soft yellowish coloured metal, never found in nature in a free state. When one part of calcium unites with one part of oxygen it forms the substance known as lime (CaO). Lime combined with carbonic acid forms carbonate of lime (CaCO_3), and this compound occurs in Nature to such an extent as to form no less than one sixth of the rock surface of the earth's crust.

Nitrate, sulphate, carbonate, phosphate, and silicate of lime are the forms in which lime is found in the soil, and the first, second, and fourth of those compounds are the sources from which plants obtain their supply. The function of lime in plants is not quite understood, but it seems to act chiefly as a carrier of nitrogen, sulphur, and phosphorus into them. It afterwards combines with the organic acids (*e.g.*, oxalic acid) formed in the plants, and neutralises them, thereby making them harmless.

IRON (symbol Fe).—This element is found widely diffused in nature in a free and combined state. It occurs in soils as iron oxides, carbonates, phosphates, and sulphates. The green colouring matter of leaves (chlorophyll) cannot be formed unless iron be present, and in the absence of this element the leaves of plants only assume a white or yellowish colour.

SODIUM (symbol Na).—This element is a silver-white metal, never found in a free state in nature, but occurs in large quantities in combination with chlorine, as rock salt. Sodium unites with oxygen to form the compound soda (Na_2O), and this substance forms one of the bases, consequently will combine readily with acids to form salts. We have good examples of the sodium salts in nitrate and phosphate of soda, both valuable fertilisers. Although soda is always found in the ash of plants, it is not considered essential for their growth, for they have been grown successfully in water and sand to which not a trace of this element was applied.

CHLORINE (symbol Cl).—This element is a yellowish green gas, possessing a pungent odour. It is never found in nature in a free state, but as chlorides of soda, lime, magnesia, or potash it is found almost universally distributed. Some plants have been grown successfully without the aid of compounds containing chlorine, but it has been found to be necessary to apply it to others.

SILICON (symbol Si; weight 29).—This element, although the most abundant in nature, is never found in a free state. It is found united with oxygen as silica (SiO_2) in large quantities. Silica is found in a nearly pure state in quartz sand, in flints, and in rock crystals. Plants can be grown without the aid of this compound, although it exists in large quantities in the straw of Wheat, and in stems of the Equisetum.

ALUMINUM (symbol Al; weight 27).—This element is a white metal, and united with oxygen forms the substance known as alumina (Al_2O_3). Although this element is not a constituent of plants, it is, like silicon, a very important ingredient of soils. Pure clay is composed of alumina, silica, and water chemically combined; but we shall deal more fully with this element and silicon when we come to consider the composition of soils. The weights of the last two elements were omitted from the table, but are now given.—W. D.

(To be continued.)

I HAILED with delight the article headed "Chemistry in the Garden," but when I came to the last paragraph on page 47, I said, This seems wrong. "W. D." says, "The reason of this is that during growth certain chemical changes are taking place, during which oxygen is absorbed and carbon dioxide exhaled." Is this so? Should it not rather be CO_2 is absorbed, and oxygen exhaled?

I was once told by a head gardener that to become proficient I ought to be able to analyse the ash of a plant to see what elements went to build up its tissues; the result was I joined chemistry and botany classes. The teacher, a professor of chemistry, told us amongst other things that plants took in carbon dioxide (CO_2) the CO_2 was split up, the carbon was assimilated by the plant, and the oxygen given off; that animals on the contrary took in oxygen, part of which combined with the superfluous carbon, and was given off again as CO_2 . This seems just the opposite of what "W. D." says.

On turning to "Oliver's Botany," p. 14, par. 7, he says, "With regard to the important element carbon experiments clearly show that it is absorbed in combination with oxygen as carbonic acid gas. . . . The green-coloured organs of plants, under the influence of sunlight possess the power of abstracting it directly from the air. Par. 8. But the most remarkable circumstance attending this absorption of carbonic acid gas is the liberation of oxygen gas by the leaves. . . . This fixation of carbon, and liberation of the oxygen of carbonic acid gas has been termed vegetable respiration; but as the conditions which obtain are the reverse of those characteristic of animal respiration, it may be more correctly spoken of as characterising the process of vegetable assimilation." I should like to know what "W. D." has to say further on the subject. I believe that chemistry, if well understood and practically applied to gardening, is one of the great helps to success.—HENRI.

VISITORS TO KEW GARDENS DURING 1896.—The number of persons who visited the Royal Gardens during the year 1896 was 1,396,875. That for 1895 was 1,407,369. The average for 1886-95 was 1,425,526. The total number on Sundays was 536,181, and on week days 855,715. The maximum number of visitors on any one day was 86,399 on May 25th, and the smallest 62 on March 18th.—("Kew Bulletin.")



POLYANTHA AND CHINA ROSES.

POLYANTHA Roses are, I am gratified to learn, steadily increasing in popularity, nevertheless I think they should, assuredly, be more widely cultivated. They have many valuable attributes. They are easy of culture, extremely hardy in character, and vigorous in habit; they flower early and late, and produce multitudes of miniature and extremely graceful flowers. Some of this family are very fragrant, such for example is the pure white Anna Marie de Montravel, which is surely one of the sweetest Roses in existence.

For many of the finest of the Polyantha Roses we are primarily indebted to that consummate French rosarian, the late M. Guillot. From his famous Lyons rosarium came Ma Paquerette in 1875, Mignonne in 1881, and the beautiful rose-coloured Gloire de Polyantha in 1887. Dabreuil has given us two veritable gems—Etoile d'Or and Perle d'Or, of which the latter Rose, with its lovely orange centre, is perhaps the most attractive of the Polyantha race.

Of climbing varieties, whose number is as yet sufficiently circumscribed, the most valuable are undoubtedly Polyantha grandiflora, a splendid pillar Rose; and Turner's Crimson Rambler, one single truss of which produced last summer in my garden 120 flowers. One of the most valuable qualifications of this phenomenal Rose, originally brought by an engineer from Japan, is that of retaining its remarkable brightness for several weeks, especially when grown, as it is here, in a partially shaded situation. I have seen the original plant of this world-famous variety in the garden of the late Mr. Chas. Jenner, near Edinburgh. He was a brother of Sir William Jenner, the head of a great firm and a distinguished cultivator of alpine flowers.

China Roses possess, like the Polyanthas, this important qualification, that from earliest summer till latest autumn they are in constant bloom. Of these, perhaps the most highly endowed are Laurette Messimy, of most distinctive colour, raised by Guillot; Cramoisi Superieure, velvety crimson in colour, of climbing tendencies and very prolific; the "Brave Old Monthly," deservedly eulogised by Dean Hole; Mrs. Bosanquet, supposed by some rosarians to be of Bourbon origin; Laffay's Fabvier, of brilliant scarlet hue; Queen Mab and Duke of York, both valuable acquisitions for the adornment of our gardens, for which we are indebted to Mr. William Paul, whose latest introduction, Enchantress, is worthy at least of China extraction. It derives much interest, in addition to its great beauty, from its winter-flowering qualifications.—DAVID R. WILLIAMSON.

DISCOLOURATION IN POTATOES.

"W. G." has raised a very interesting question (page 76) when he deals with that form of discolouration known as blackness of flesh so often found in Potatoes. That what he refers to is not due to rough treatment or to bruises is undoubtedly true. A good deal of blackness is produced by rough usage we all know, and especially is it so with the softer fleshed or more starchy flesh of certain varieties when roughly handled. But rough usage promoting blackness of one form, whilst the effect is precisely the same, yet does not help to the elucidation of the other constitutional blackness which is referred to. I have found some curious differences in reference to soil capacities in connection with certain varieties. One, a very fine white kidney, and should have made a splendid market variety, used to boil very black in West Middlesex, which soon destroyed its reputation. Down in Berkshire it does splendidly, and is one of the most favoured varieties of the district.

What I assume, therefore, is that Potatoes, like Apples, have diverse requirements, which certain soils do not always furnish, but other soils do; hence they are good in one place and indifferent in another. What those requirements are in these certain varieties chemists alone can tell, that is if their analysis should reveal the secret. It may be deficiency of starch, or of some other essential constituent which the soil fails to create in needful quantity. Then if there be both soils that fail to provide these requirements and varieties on that soil, evidence in the blackness of their flesh that something is wanting, or may be in excess, then how useful would it be on such soils and with such varieties to test various compounds of manurial form—soot, lime, phosphate, potash, or other ingredients—that it may be ascertained whether in that way amelioration is possible or not. In these days of advanced scientific knowledge it seems incredible that a difficulty of this nature should exist without the cause being speedily ascertained. I have often noticed when attacks of disease have destroyed the leafage early that tubers, especially in the heel ends, have manifested the complained of blackness very materially. The conclusion in that case is that the tubers are deficient in starch or some other ingredient, because their leaf laboratory was so early destroyed.

No doubt the Potato does suffer more than any ordinary edible vegetables from any disease, not only because the Peronospora induces rot or disease in the tubers, but also because, through the premature destruction of the leafage, the tubers too seldom come to full maturity. That is specially so with large tubers, and an excellent reason why we

should strive to obtain tubers of medium size, well charged with starch, and making good food, rather than big ones that are so largely composed of water and imperfectly formed flesh. I think we have very much to learn even yet concerning Potatoes and their culture. So far our trials have chiefly been in relation to production. Now we seem to need tests of capacity to secure the highest quality.—A. D.

BRIEF NOTES ON ALPINE FLOWERS.

(Continued from page 8.)

THE WINTER ACONITE.

THOUGH this is not one of the choice and rare gems of the rock garden, its brightness now in the second week of January, in a low shady corner, makes it worthy of a passing note. It is sometimes seen in hot, dry positions, where it is weakened by the long period of "drying up" which it so frequently encounters in summer in such a situation. The little *Eranthis hyemalis* is one of the tuberous-rooted plants which should not be any longer out of the ground than can be helped, and also likes to have always a little moisture about it. In a low damp corner it is at home, and increases at the root, and by means of its seeds also. I do not intend to say anything about its little flowers, which are so bright and cheery when there is little else to warm up these dull corners. These flowers must speak for themselves, but this brief note may not come amiss and may induce some to give it more suitable treatment than before.

SEMPERVIVUM ARACHNOIDEUM.

This, and other "cobwebby" Houseleeks, frequently looks very unhappy in winter, especially in a wet season, and this is more noticeable when they are planted on the flat. Here they generally appear very unhappy unless growing in the crevices of the rock garden or on the face of a wall. The rain, which has so often been with us this winter, takes away the whiteness of the woolly tomentum with which the little rosettes are overspun and makes it dull looking. Not seldom do these cobwebbed Houseleeks damp off in some wet localities, where all the conditions are unfavourable. The wall is certainly the best place to grow them outside. Although the rosettes are smaller on a wall, the tomentum is whiter and the plants more healthy in their looks. A good start may be made by making a small hole in the mortar of a wall, filling it up with a mixture of clay and cow manure, and inserting in this compost the base of one or two rosettes of the Houseleek. The hole may be made so that the mouth of it shall be slightly turned upwards, so as to direct into it more of the rain that falls than it would otherwise obtain. The spring is the best season of the year for planting, and in the course of a few years the one or two rosettes originally planted will have increased into a neat little mass. This is a very good way to grow the most of the Houseleeks, all of which look very well on the face of a stone or brick wall.

SAXIFRAGA AIZOON ON A ROOF.

We often see Houseleeks and Stonecrops on roofs, but seldom any of the Saxifrages. Some species are not at all adapted for such hot and dry places, but it is wonderful to see how well the encrusted ones do on a roof, always provided of course that they are not allowed to become quite shrivelled up and scorched. A compost of stiff clay and cow manure, with a little lime rubbish among it, should be mixed with a little water, made rather firm, and put on the roof while wet. The Saxifrage may be planted in this before it becomes dry. In very dry weather the leaves sometimes becomes quite limp, and when this is seen to be the case it will be well to apply a little water by means of a syringe or hose. This will soon revive the drooping plant. A large plant of a Saxifrage, such as *aizoon*, looks very handsome on a low roof with its long, grey, strap-shaped leaves forming large rosettes, and surmounted in spring by its flowers on long stalks. One such plant on the roof of an outhouse in the writer's garden is very pretty even in this early season of the year.

FORMING ROCKERIES.

It is yet much too early to plant out alpine flowers, but not too soon to form the rockeries upon which they are to grow. Instructions in forming rockwork have been given in the Journal before, but it is difficult to impress too strongly upon those about to construct rockeries that the welfare of the plants should be considered in preference to the picturesqueness of the structures upon which they are to grow. A good body of earth free from holes and cavities is necessary. This soil ought to be good if at all obtainable. The stones must also be arranged in such a way that rain will soak through the earth, and not run off as it falls. This will not be the case if the rockery has too steep a slope, and a series of terraces on which the flowers are planted will be found very suitable for the purpose.

There are some plants which prefer to hang over stones, or to grow from a crevice, but these nearly all send roots away into the soil behind and below, which must be supplied with moisture from somewhere. There are many steep rockeries which are dust dry in summer, but in which flowers needing moisture at their roots are expected to thrive. It is almost needless to say that disappointment is certain to result should this requirement not be satisfied.

ALPINES IN FRAMES.

Rather a critical season for Alpines in frames is at hand; one may almost say is here. Air should be freely admitted unless in very hard

frost. But for being in pots, which might be rent by the frost, they would be better to have air even then. With the mild weather prevalent of late it is necessary to give air to prevent damping off. Rotting and decaying leaves ought to be taken away and a free circulation of air encouraged. Slugs may also be looked for and captured as speedily as possible, as on some plants their ravages are quite destructive. Coal ashes do not give the immunity they are said to yield. Sometimes these pests of the garden are found clinging to a piece of cinder, apparently quite comfortable upon the surface of what is placed to keep them away. The glass of the frames may be kept propped up at both back and front. If the frames admit of ventilation further down air may also be given there. Very small and weakly plants are better in a greenhouse with a little fire heat, but with plenty of air. Keep them near the glass and water carefully, keeping them slowly growing on until they can be properly hardened off before planting out in spring.

CYCLAMEN COUM.

The little space remaining for these notes may not unprofitably be devoted to the beautiful little Sowbread which bears the above name. An early form in my garden has its deep crimson flowers lifted up ready to unfold their closely packed petals. These little hardy Cyclamens are always much admired, although their flowers look tiny beside those of the best of the Persian Sowbreads. The admirer of alpine flowers can hardly help having an affection for these little plants with their round flattened tubers, round leaves, and beautifully formed and coloured flowers. There is not space to tell much more about this Cyclamen. It likes a sheltered but shady spot, and appreciates the partial shade of trees or dwarf shrubs. A little limestone or old mortar rubbish mixed with rich loam, or even sandy peat made firm, is not unwelcome to it.

It is, perhaps, safer to purchase plants of these in small pots, out of which they can be turned with the earth attached. The leading growers of hardy plants for sale keep them in stock in these pots, and there is less danger of losing them when thus obtained than if lifted from the open ground. C. Coum may also be grown from seeds, which should be sown as soon as ripe if they can be obtained. A few established plants will soon produce self-sown seedlings. The final words of this note must be:—"This is a charming little plant, worthy of care on account of its beauty."—ALPINUS.

(To be continued.)

WINTER WORK.

IN a note on the present severe weather we are experiencing, an esteemed contributor says "gardening operations are at a standstill." Never in my experience, which may be allowed to date from the time I went "Covent gardening" as a small boy in knickers, has it been my lot to participate in such a dead state of affairs as that indicated. The work of the ground, such as digging, may be temporarily stopped, but gardeners, as a rule, know in how many other ways their energies may be exercised. It is to be hoped in any case that with the advent of frost and snow the community at large do not believe that means the departure of work from any number of gardens.

I have jotted down a few things which may be worthy of mention in the Journal, and that may with advantage be proceeded with at the present time. We are at present busy clearing dead wood from shrub-berries, also pruning shrubs that are growing into each other, and where snow does not lie thickly giving a good clean out. Wheeling should, as much as possible, be proceeded with now; rubbish fires may be kept going, snow will require to be swept, pea sticks as they come to hand sorted over and pointed, and pegs made for use later on. Such work done now will save much valuable time in the summer.

Where labels are not bought they may now be made and tied in bundles according to the various sizes. Stakes for herbaceous plants in borders should be looked to, those worn out put on one side for firewood and new ones pointed and tied in bundles ready for use. Boxes for propagation and seed sowing may be made; sometimes frame lights are at liberty and may be taken under cover, when a handy man will paint and repair them where necessary. Manure should be obtained, turned, and got ready in preparation for hotbeds. The humble but useful art of pot-washing may now be practised in warm water.

In the middle of the day we have proceeded for a few hours with the pruning and nailing of Peaches and Nectarines, but we do not advocate this work to be done in very cold weather, as it is next to an impossibility to do it as well as is desirable. All these things, however, got well in hand now, will prove helpful hereafter when the pressure comes and work crowds on us faster almost than is in our power to cope with.

Extraneous help will in a number of cases be brought to bear on work under glass, such as limewashing, glass washing, winter dressing, the preparation of soils which have been placed under cover. There may be ice wells to fill, with all the work that this operation involves; but enough has been said to show that if we have no digging there need be no dearth or cessation of work simply because we are having a spell of wintry weather, and if our "Standstill" friend were at my disposal I could find him plenty of exercise.—A BUSY BEE.

IRIS.—Where there is a large demand for flowers Irises will be found most useful if only taken up and placed in early vinery or Peach houses, but if for conservatory work they will repay extra care by potting them. Their Orchid-like flowers predominating above other flowers form a feature for Eastertide if taken up at once.—A. E.

HINTS ON FORCING.

(Continued from page 53.)

THE various sections of hardy Azaleas each contain many varieties well adapted for forcing; indeed, they include some of the most showy plants that can be brought into flower during the depth of winter. In the numerous varieties of *A. mollis* we have, I think, the type best suited for forcing, as the flowers are of good shape, the trusses large, and the habit of the plants good. Although I am a great lover of the Belgian and Pontica varieties when grown in the open air, for forcing the mollis section is gradually superseding them, principally on account of their larger flowers and more compact habit of growth. The plants should be obtained as early as possible in the autumn, and after being potted plunged in ashes in the open air; then, if not introduced into heat till Christmas, they usually give a good account of themselves. The earliest batches I like to plunge in a little bottom heat, and syringe freely each day to induce the whole of the buds to open simultaneously.

With the best of attention, however, a few flowers will sometimes open greatly in advance of the majority on a given plant. When such is the case I use these early flowers in a cut state. Those left then usually open together, and are sufficiently numerous to make the plant attractive enough to place singly in a vase. By the time the flowers are beginning to show colour we often get bright bursts of sunshine, which cause them to flag badly. An inexperienced attendant is then tempted to give water freely at the roots, which often aggravates the evil. The right course to adopt is to damp between the pots with a syringe, and give temporary shade till it can be clearly ascertained whether or not the plant is in need of water. With this treatment well developed flower trusses may be obtained, when without such attention they would lack substance and drop quickly.

Amœna, and the improved type *A. splendens*, are good evergreen varieties that should be grown in quantity for early forcing; these succeed the best when kept in pots throughout the year.

Deutzia gracilis, although an old favourite, is still one of the very best shrubs for forcing, bearing white flowers. Mistakes are, however, frequently made in its culture. A common one is to pot the plants in the autumn only a few weeks before they are taken into heat. The result of this practice is that many of the flower buds turn yellow and drop, and the plants show great signs of distress if a little air is admitted into the house or pit in which they are growing, or if a few gleams of sunshine reach them. Shoots with flowers and leaves of this description are practically useless when cut; they have no lasting qualities. The way to avoid such mistakes is to grow the plants intended for early forcing in pots throughout the year. Then if given liberal treatment during the summer good firm shoots are produced, which will stand sharp forcing, and flower at every joint, because there are plenty of active roots to support the young growth as it develops. The main batch should be potted from the open ground in September before the leaves have fallen. The plants then have time to recover themselves, if not to form new roots, before they feel the strain of forcing.

Forced Lilac seems to become more popular each year, and in large establishments, when cut flowers are in great demand, it behoves the gardener in charge to work upon a good system in the endeavour to provide a supply. As in the case of *Deutzia gracilis*, an early batch should be grown in pots, so as to secure plenty of healthy roots ready to spring into activity when the plants are introduced to heat. Later bushes may be planted in the open air, and potted early in the autumn. When these have done flowering the shoots should be cut back to within 2 inches of their base, grown for a time under glass, and in April or May planted in the open air again, and allowed to remain there for eighteen months before being forced again. In forcing the earlier plants it is a good plan to place them in a Mushroom house or other structure which can be darkened, and in which a temperature of from 55° to 65° can be maintained.

A cellar will answer the purpose if sufficient fermenting materials are introduced to keep up the necessary temperature. Under this treatment the flowers of the common varieties will come perfectly white, but few if any leaves will be produced at the same time. This difficulty can, however, be overcome by placing in a forcing house a few bushes not furnished with flower buds shortly after the first plants are introduced into a darkened structure. The present is an excellent time to place a good batch in forcing houses, where a temperature of from 65° to 75° is maintained. If placed under the stage where light is partially excluded the flowers come white, and leaves are produced at the same time.

It does not answer, however, to pursue this plan in November, because at that season if plants are placed at the outset in so high a temperature strong growth is quickly produced, and the flower buds become hard and refuse to break. Every part of the plants should be syringed twice daily while growing in forcing houses at this season when high temperatures are maintained. Those who have not a supply of plants on hand can easily obtain them from any nurseryman of repute. Charles X. is the variety most largely used for forcing, but the common one answers the purpose very well. The new varieties now being sent out will in time supersede these, but at present they are rather too expensive for forcing largely.

A hint worth knowing about this forced Lilac is that if a strip of bark 2 inches in length is removed from the base of each shoot, immediately before placing it in water, the freshness of the flower will be preserved for a very much longer period than would be the case if only the end of the shoot was cut off.

The common Sweet Briar does not seem to be forced so largely as formerly, yet wherever its deliciously scented shoots are produced they are always appreciated. The right course to adopt is to lift the plants and pot early in the autumn, then plunge them in ashes till November or December, when they can be introduced to heat as required. At this season of the year, however, I have frequently lifted plants from the reserve garden and taken them directly to the forcing house with satisfactory results. One often omits to pot such things as these at the most seasonable time; it is, therefore, fortunate that it is not too late to do so now, and in the course of a few weeks be rewarded with shoots bearing tender sweetly scented leaves at a time when suitable greenery for arranging with cut flowers is generally scarce.

Solomon's Seal (*Polygonatum multiflorum*) is another extremely useful plant for forcing, as its long shoots, delicate leaves, and drooping white bells are of a type always welcomed by those who are constantly arranging cut flowers. An excellent way to force them is to lift the roots as required, pack them closely in boxes a foot in depth, work in a little soil among the roots, water, and cover the box with a board. The box can then be placed in a forcing house, vinery, or any other structure where room can be found, and the board be removed when a few inches of growth have been made. Treated in this way, a good length of stem is secured. As soon as the principal shoots have been cut the plants can be gradually hardened, and in April divided and planted in a prepared bed in the open air, where it is necessary to leave them about three years before they are lifted again.

I always make a point of growing a few plants of *Rhododendron Nobleanum* in pots continually, as they may with very little forcing be had in flower early in February. They must, however, be well attended to during the summer months, or only puny flowers will be produced. The older varieties have flowers of scarlet, rose, and light pink shades of colour; but there is a fine new addition named *N. coccineum*, which produces flowers of a very bright and attractive scarlet. I hope to conclude these hints next week by a note on Roses.—PLANTSMAN.

MANURE FOR TOMATOES.

HAVING last season suffered from various fungoid diseases in my Tomato houses, I have, in addition to taking in fresh soil, mixed with it a good dressing of lime; but as I think the soil will need some enrichment, would it be advisable to use some kainit previous to setting out plants? I wish to avoid altogether the use of stable or farmyard manure, as I am inclined to think this very often causes fungoid attacks. Advice will be greatly esteemed.—T. P. R.

[In order to have full and properly swelled crops of Tomatoes, something more than fresh soil, except it be unusually rich and lime mixed with it, will be necessary. The Tomato requires a good all-round food, as shown by the constituents of the ash of the plant in parts per hundred:

Potash	...	...	...	...	...	...	...	27.00
Soda	...	...	...	...	...	...	...	10.39
Lime	...	...	...	...	...	...	...	12.16
Magnesia	...	...	...	...	...	...	...	8.21
Iron	...	...	...	...	...	...	...	3.96
Phosphoric acid	...	...	...	...	...	...	...	18.58
Sulphuric acid	...	...	...	...	...	...	...	4.86
Silica	...	...	...	...	...	...	...	12.36
Chlorine	...	...	...	...	...	...	...	2.54

100.00

Nitrogen 2.31

Kainit would supply the requisite potash, soda, magnesia, and chlorine; superphosphate, the essential phosphoric acid, with some sulphur (sulphate of lime); sulphate of iron, the available iron required; either sulphate of ammonia or nitrate of soda, the imperative element nitrogen. It is therefore a question of proportions of the substances named, and the following is an excellent and economical formula:—

Dissolved raw bones	...	...	...	...	...	6	parts or lbs.
Kainit	...	...	...	...	...	6	" "
Sulphate of ammonia	...	...	...	...	...	2½	" "
Sulphate of iron	...	...	...	...	...	½	" "
Gypsum	...	...	...	...	...	5	" "
						20	" "

Mix and apply 4 ozs. per square yard, or 7½ lbs. per rod. If the soil be poor double quantity may be used, pointing-in well with a fork. This is a substantial food, as the substances come into availability gradually, and are safeguarded against loss. If the soil is light, the following simple mixture at a low cost gives excellent results:—

Fish meal ("white fish")	...	...	...	...	...	10	parts or lbs.
Mineral superphosphate	...	...	...	...	...	2½	" "
Kainit	...	...	...	...	...	5	" "
Nitrate of soda	...	...	...	...	...	2½	" "
						20	" "

Mix and apply 4 ozs. per square yard, or 7½ lbs. per rod, and point-in shortly before planting.]



WEATHER IN LONDON.—The weather in London has undergone a great change since our last issue went to press. Then we were in the midst of frost and snow, and now we are enveloped in fog and small rain. On Friday last the thaw commenced and rapidly proceeded until there were no remaining signs of frost and snow. On Tuesday rain fell incessantly, while in the southern suburbs there was a fog of the pea soup variety in the early morning. There was a very slight frost on Wednesday morning.

WEATHER IN THE NORTH.—For the past week the frost has not been so intense, averaging about 6°. The feature of the week has been the general snowstorm towards the close of it, Saturday's fall being especially heavy, resulting in blocked roads and railway lines in the northern counties, and the isolation of towns here and there. Tuesday morning showed 2° frost, with indications of more snow. —B. D., *S. Perthshire*.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society will take place in the Drill Hall, Victoria Street, on Tuesday, February 9th. The various Committees will assemble at noon, as usual, and at three o'clock the annual general meeting of the Society will be held at the Society's Offices, 117, Victoria Street, Westminster.

A GREAT FORTHCOMING FÊTE.—A happy movement in connection with the long reign celebrations is the Imperial Fête in aid of the Victoria Hospital for Children, to be held in the Botanic Society's Gardens next June. The fête is receiving hearty support on all hands. The Prince and Princess of Wales and other members of the Royal family are taking a deep interest in it as patrons of the undertaking, and the whole of the Botanic Gardens have been placed at the Committee's disposal.

ILEX AQUIFOLIUM LAURIFOLIUM LONGIFOLIUM.—Of the many varieties of the common Holly in cultivation in our gardens, this is certainly one of the best. When planted in good soil it is of rapid growth, and forms a somewhat close-growing pyramid. The leaves are ovately oblong, narrowing at the apex to a spine. They average 5 inches in length by 2 inches in width, colour dark green and very glossy. Many of the leaves are quite destitute of spines, with the exception of the small one at the apex; other leaves have spines on the margins, ranging in number from one to eight. The berries are large and bright red. The free growth of this variety, together with its large, distinct foliage and good habit, should make it a very popular subject for ornamental planting as it becomes better known. Another variety, known as *I. aq. camelliaefolia*, is very similar; in fact, almost identical with the foregoing. —W. D.

THE RETIREMENT OF MR. DAVID THOMSON.—A wide circle of friends will learn with deep regret that Mr. David Thomson, Drumlanrig Castle Gardens, is soon to vacate the post of head gardener to His Grace the Duke of Buccleuch, and to retire from that responsible position next May, which he has held with such distinction for twenty-nine years. Mr. Thomson's successful career as a horticulturist, and manager of the princely gardens indicated, also at Archerfield and in England, is well and widely known to all who have seen the work which he has accomplished during a most active and exemplary life. In every branch great achievements have been made by his masterly skill. The urbanity, kindness, and high character of Mr. Thomson, his help and communicativeness to all who sought his advice on many matters of importance, as well as on gardening, has commanded the esteem of very many friends. Mr. Thomson has, with great lucidity on every branch of horticulture, written much which is greatly appreciated by many readers. His noble employers feel keenly the severance of their valued manager from their splendid domain, and have made many kindly overtures to Mr. Thomson to remain at his post. Though his activity of body and mind is much in evidence, the health and advancing years of the worthy veteran have now to be considered. Mr. David Inglis, head gardener to Lord Grey, Howick Hall, Lesbury, has been appointed successor to Mr. Thomson. This very able all-round gardener (now in the prime of life) well merits the choice which has been made.

MR. HUGH FRASER.—We learn that Mr. Hugh Fraser is about to retire from the service of Messrs. Methven & Sons, nurserymen, through failing health. Mr. Fraser has been with this firm during the last forty-eight years, and as a member of the Edinburgh Naturalists' Field Club and Microscopical Society, the Edinburgh Botanical Society, and the Scottish Horticultural Association, is widely known and respected.

SUDDEN DEATH OF LORD LEIGH'S GARDENER.—Widespread regret is felt in the neighbourhood of Kenilworth and Warwick at the sudden death of Mr. T. Beddard, which took place on the morning of January 24th, and was due to heart disease. The deceased gardener held for nearly twenty years the important position of chief in the management of the extensive and well kept gardens at Stoneleigh Abbey. He was highly esteemed by the noble family he served so faithfully, and his courteous uprightness and kindness of heart secured for him a host of friends among the many thousands of visitors to Stoneleigh. As a gardener he stood in the front rank, and his untimely death will be greatly regretted by his many friends in the horticultural world. —H. D.

THE HESSLE GARDENERS' SOCIETY.—The usual fortnightly meeting of the above Society was held on Tuesday, January 26th, Mr. Geo. Wilson (Swanland) in the chair, when a paper was read by Mr. Chas. Lawton, gardener to W. H. Harrison-Broadley, Esq., Welton House, Brough, on "Horticultural Exhibits and Exhibition Plants." The essayist referred to his first visit to a flower show in 1861, at which time fruit was shown in many cases quite equal to any now produced, and regretted that the culture of Pines had become almost a thing of the past. Speaking of the present-day exhibitions, he continued, taking them all in all, they are the best exhibitions of horticultural produce the world has ever seen, and no country can equal our own in producing such splendid examples of Nature's boundless wealth, both in fruits, flowers, and vegetables. Active steps are already being taken towards inaugurating a summer show in connection with this Society, which it is hoped will be successful. —F. L. T.

LIVERPOOL HORTICULTURAL ASSOCIATION.—The eighteenth annual meeting of the above Association was held in the Lecture Room of the Free Library on Saturday evening. The Secretary's and Treasurer's reports were read, the latter showing the Society to be in a better position than last year. The election of officers and Committee followed, several new members being added. Mr. G. Blackmore, Sub-Treasurer, and the Secretary, Mr. W. Dickson, were re-elected. A discussion ensued relative to the number of exhibitions to be held this season, it being decided to again hold grand summer and autumn shows. The Society has always endeavoured to have the shows of a high standard, and regrets exceedingly the poor attendance at the spring shows. The Committee earnestly hopes that the public at large will support the forthcoming exhibitions, and endeavour to place the Liverpool exhibitions up to the high position of a few years ago. A hearty vote of thanks to Mr. T. White, the Chairman, concluded the meeting.

READING GARDENERS' ASSOCIATION.—The annual tea of this Association was held in the Abbey Hall (lent by Messrs. Sutton and Sons) on Monday, the 25th ult., when the newly elected President, Mr. C. B. Stevens, presided. The party numbered about 100. After justice had been done to an excellent repast, the President read letters which had been received apologising for the unavoidable absence of several gentlemen. The second part of the meeting was a new departure as far as the Gardeners' Association is concerned. It was thought advisable to try and save the expense of engaging professional talent to carry out the entertainment and to have a smoking concert, the programme to be sustained by the members, and, with one or two exceptions, this was done. The new arrangement proved a great success, and was pronounced to be one of the most enjoyable entertainments ever held by the Association. In an interval in the programme Mr. T. Neve took the opportunity of proposing a hearty vote of thanks to the President. This was seconded by Mr. Dearlove, and carried unanimously. Mr. C. B. Stevens, in reply, thanked the members for the great honour they had done him in electing him their President for the year 1897, and said that although a stranger to most of them he hoped this would not long remain so. He confessed that he knew little of the practical part of gardening, yet he knew that the gardeners' was one of the most difficult of crafts, requiring a great amount of forethought, care, and knowledge, and he considered that these social meetings and their meetings devoted to lectures were most valuable, as they enabled them to know each other better, and to obtain knowledge from one another which would help them in their work and in their Association.

— GARDENING APPOINTMENT.—Mr. J. P. Kendall, hard gardener and bailiff for thirteen years to the late H. L. Holland, Esq., Templeton, Roehampton, S.W., has been appointed in a similar capacity to J. P. Gassiot, Esq., The Culvers, Carshalton, Surrey.

— DEATH OF MR. ALEXANDER CURLE.—We regret to have to announce the death of Mr. Alexander Curle, which took place a short time back at Priorwood, near Melrose Abbey. Mr. Curle took a keen interest in botany, and had an observant eye for all things beautiful in Nature. He had a knowledge of all classes of horticulture, and his garden and grounds were an interesting study.

— WINCHESTER GARDENERS' ASSOCIATION.—On Tuesday the 26th ult. Mr. P. H. Foulkes, B.Sc., M.R.A.S. (of the University Extension College, Reading), gave a lecture on "Insects Injurious to Plant Life, and How to Deal with Them." The lecture was made more interesting by the different subjects treated on being clearly shown by the lantern. The principal subjects were the winter moth, eelworm, and weevils, giving the life history of each, the time when they could be dealt with successfully, and the best methods of doing it. Many useful and practical hints were given, and the lecture was highly appreciated. A vote of thanks was given to Mr. Foulkes for his lecture.

— A TREE DIAMOND MEMORIAL.—The intimation that a northern nobleman proposes to plant some trees on his estate in memoriam of the Queen's sixty years' reign seems to be a singularly happy one. It is a suggestion that might be acted upon in a thousand directions, not only by private landowners, but by many public bodies who have parks or open spaces of considerable area under their control. There are several parks in London, for instance, where sixty enduring trees, such as the Oriental Planes, might be planted, either in one huge group or in several, or in avenue form. In how many large private parks might not a grand group of sixty trees become in time one of the finest objects in the landscape! Those whose parks or land are limited might plant Thorns, Laburnums, or small Conifers, or even shrubs. In other directions fruit growers might plant specially selected sixty trees of Apples, Pears, or other fruits. Wherever so planted and labelled these trees would have enduring interest as a memorial of the Royal event of the century, one so far unique in the history of England. In how many small areas and gardens might not a single memorial tree be planted! Indeed, were this idea acted upon generally it is not too much to assert that over a million of such memorial trees would be planted during the present year. In the majority of cases the planting would have to be done in the autumn, as the month of June for the purpose would not do. That is of little moment so long as planted in the diamond year of 1897. I venture to think this proposition is very sensible, is very practical, and most certainly is eminently fitted to benefit horticulture.—A. D.

— WAKEFIELD PAXTON SOCIETY.—Under the title of "Rambling and Scrambling among the Alps," Mr. J. W. McPherson, B.A., of the Wakefield Grammar School, delivered a highly interesting lecture at the meeting of the Paxton Society held on the 23rd ult., in presence of a good company, over which Mr. W. Tunnicliffe, Denby Dale Road, presided; Mr. J. G. Brown, Outwood, being Vice-Chairman. By the kindness of Mr. Harold Parkin, who lent and cleverly manipulated his lantern, the lecture was profusely illustrated with excellent slides obtained by the lecturer for the occasion. Mr. McPherson eloquently and felicitously described the pictures presented, the earlier part of his lecture and the accompanying illustrations setting forth the beauties of Lucerne, the lovely villages nestling on its shores, the resorts of tourists upon the hills around, and the wonders of Pilatus and the superstitions of the natives in regard thereto, and gave many interesting details of the Righi, in the ascent of which botanists might see a marvellous variety of floral specimens, including the Harebell, which was of large growth and tinged considerable patches of the slopes with blue. At one stage of the lecture Mr. McPherson gave his audience an example of the unmusical call of the mountain horn, so much in use in the Alps by tourists and others. The references to Schiller's *ahode* and Tell's Chapel and monument revived in the minds of the audience the legends learnt in their boyhood, and were also a diversion from the beaten track followed by the ordinary tourist. Having described the ascent of Pilatus by railway, the lecturer passed on to the St. Gothard district, and exhibited many picturesque or otherwise interesting views, embracing the Rhone glacier, Basle, and the Rhine. Concluding, Mr. McPherson said our own north country scenery compared very favourably with the much-vaunted scenery of the Alps. The lecturer and Mr. H. Parkin were cordially thanked for their services.

— SOUTH SHIELDS WEATHER.—Mr. Bernard Cowan writes:—"We are having severe weather here just now. The thermometer has only been 11°, but the north-east wind has been of the bitterest description. I am more than anxious, as we have 17,000 Wallflowers planted out this spring and 8000 Stocks."

— JANUARY WEATHER AT DRIFFIELD.—Mean temperature at 9 A.M. (corrected), 33.80°. Wet bulb, 33.17°. Mean maximum, 38.01°; mean minimum, 30.66°. Highest, 43.6° on the 1st; lowest, 18.8° on the 26th. Mean of maxima and minima, 34.33°. Mean radiation temperature on the grass, 26.93°; lowest, 14.6° on the 25th and 26th. Rainfall, 2.44 inches. Number of rainy days, twenty-one; greatest amount on one day, 0.36 inch on the 7th and 8th.—W. E. LOVEL, *Observer, York Road, Driffield.*

— WINTERY WEATHER.—A touch of real winter has been experienced over the British Islands during the past week, and the thermometer has in many places registered a lower reading than on any previous occasion since winter set in. Towards the close of last week, and especially on Friday and Saturday, snow fell very generally at many of the English stations, and on Saturday night there was a heavy fall in the metropolis. The snow quickly disappeared from the more crowded parts of London, but it remained unhawed in the suburbs on Tuesday morning. The thermometer in the screen at night has registered 10° or 12° of frost in many parts of Great Britain, while the exposed thermometer, on the grass, has fallen several degrees lower. The type of weather over our islands has become anticyclonic; and if these conditions continue a spell of settled cold weather will be experienced.—("Nature.")

— PRESENTATION TO MR. CYPHER.—In a recent issue we called attention to a supper that had been given by this well-known nurseryman to his employes to commemorate the attainment of his seventieth birthday. It appears that the object of the supper came as a complete surprise to the men, who were consequently unprepared to make any recognition of the interesting event at the time; but as the outcome of subsequent action of the men, who were determined not to let such an event pass unrecognised, Mr. Cypher was on Friday night the recipient of a handsome armchair as a mark of the high esteem in which he is held by the men, and of the cordial relations that have so long subsisted between employer and employed. The presentation was made by Mr. Richard Cull, who expressed the hope that their respected master might long be spared to enjoy the ease and comfort he so richly deserved. Mr. Cypher was much affected by this mark of appreciation.

— ANOIGANTHUS BREVIFLORUS.—This has been known to botanists for over fifty years, but it is only within the last decade that it has been in cultivation. It is a bulbous plant nearly related to the *Cyrtanthus*, and is a native of several portions of Eastern South Africa. Its value lies in its being an easily cultivated plant, which flowers freely when once established, and generally during the winter or spring months. At present, says a contemporary, it is not common, and it would be a gain to horticulture if a large importation of it could be made so as to enable it to be grown in quantity. There is one mass of it which bore four spikes of flower in the Heath house at Kew, which is just sufficient to show what a charming display could be made with fifty or one hundred scapes grouped with Maidenhair Fern or some such plant, for it is itself destitute of foliage at this season. Strong scapes carry from nine to a dozen flowers, which are of a clear bright yellow. The segments of the perianth being 1½ inch to 2 inches long. It requires quite cool treatment, and may be grown in an unheated frame.

— BEGONIA GLOIRE DE LORRAINE.—Gloire de Lorraine, of which there is a notice and illustration on page 48 of the *Journal of Horticulture*, well merits the praise it has received, as it is undoubtedly a valuable acquisition. As seen during the last months of the past year in the Oxford Botanic Garden it was exceedingly pretty; dwarf compact plants 10 to 12 inches in diameter were so profusely bloomed as to present really delightful masses of clear rosy-pink flowers so dense as to almost envelop the neat foliage that emerged from their lower branchlets, as though designedly to garnish the rims of the pots in which the plants were growing. There is a distinctive prettiness in this Begonia that makes it particularly welcome, especially at a season of the year when flowers are none too abundant, and a quality that will doubtless speedily win for it universal favour. The parentage of this triumph of hybridisation is said to be Begonia socotrana and B. Dregei, the former being introduced into this country by Professor J. Balfour, I believe, during his directorate of the Oxford Botanic Garden. Mons. Lemoine may be heartily congratulated on having raised and distributed such a charming hybrid Begonia as that of Gloire de Lorraine.—JOHN E. JEFFERIES.



CALANTHES VEITCHI AND VESTITA.

It is much to be regretted that the above *Calanthes* are not nearly so well grown as they were some few years back, not that it is altogether lack of knowledge of their cultural requirements, but the numerous hybrids and importations so frequently appearing seem to have relegated these beautiful and useful winter-flowering Orchids to a much lower position than they deserve. Yet the fact must not be overlooked that either as cut flowers or for decorative purposes in pots we have few modern Orchids that are so accommodating, the length of stem when cut being of great service, whilst for grouping they can be so arranged as to present the most graceful appearance, the lasting properties of the flower spikes being a great feature in their support. The variety *Veitchi* is certainly the more valuable, and if the late Mr. Dominy did no more than raise this one variety it was sufficient to keep his name perpetuated.

Having had for some years past to keep up a large supply for various purposes I am sending a few notes on their culture, also some spikes from plants which have not been repotted for three years. They are not of the best, yet you will see how bright and useful they are at this dull season.

After the plants have finished blooming they may be kept on the dry side until the new growths are seen to be moving. Many growers let them start in the old compost, and with careful watering, or if they are to be grown in it a second season, it is all well and good, but ours are shaken out of the pots and laid in a box of charcoal and sphagnum, into which they soon begin to make new roots, and when ready for potting they lift much easier and have a portion adhering to the roots, no check being experienced. The cultivator must determine on the size of pots suitable to his requirements; the largest sized pseudo-bulbs may be placed singly in 5-inch pots, 7-inch for three, and 9-inch for six bulbs. The pots must be carefully drained.

The compost we use is composed of two parts fibry loam, one peat, with the remaining part coarse silver sand and dried horse droppings. The latter I use in preference to cow manure, as being sweeter and less liable to get sour. Some rough pieces are placed over the drainage, and fill up level to the rim. A small stake is placed against each pseudo-bulb to keep them in position until they have taken hold of the soil, when they may be filled up to the rim of the pot with the same compost.

After repotting a moist growing temperature of from 65° to 75° will suit them to a nicety, watering most carefully at first, gradually increasing the supply as the summer advances, giving weak guano water about twice a week, and shading from hot sunshine. When the flower spikes can be detected at the base of the pseudo-bulbs less water will be needed, and if when in flower the plants can be arranged in the midst of a bank of Maidenhair Fern and Asparagus the effect is greatly enhanced. If a larger stock is required break the pseudo-bulbs at a joint, and lay them on some sphagnum moss, when growths will be the result in almost every instance.

To sum up, success is only to be obtained by moderate watering after repotting, heat and moisture, with shade from strong sunshine during the summer, weak applications of liquid manure, which helps to consolidate the pseudo-bulbs, and growing from start to finish without a check.—R. P. R.

[Our correspondent has taken an excellent means of proving the correctness of his methods of procedure by forwarding specimens of the flowers, the cultural details of which he treats so well in the preceding paragraphs. The spikes are of good length, the flowers even and closely distributed on them, and what is more advantageous all on one side, thus allowing each to be seen readily. Though the notes above deal with *C. Veitchi* and *C. vestita* only, there are many others of great utility—namely, *C. porphyrea*, *C. rosea*, *C. Limatodes rosea*, *C. Veitchi lactea*, and *C. sanguinaria*, each of which is represented in the engraving (fig. 24)]

ORCHID SALES.

WEEK by week and month by month bring in their train that institution of a comparatively recent growth—the Orchid sale. One may always purchase Orchids at the sale rooms of Messrs. Protheroe & Morris in Cheapside. Not a lot of rubbish, but good plants from sound and reliable sources. On Friday last Messrs. Sander & Co., St. Albans, had sent a large consignment of Orchids

in and out of pots, though, owing to the weather, nothing of startling merit was noticeable. Buyers were not particularly numerous, but the plants were rapidly taken up. On Friday, February 5th, there will be another Orchid sale, the specimens this time coming from Messrs. W. L. Lewis & Co. and J. W. Moore, and comprise numerous lots of *Cypripediums* and *Odontoglossums*.

A GARDEN IN THE ISLE OF WIGHT.

[An Address (amplified) by Rev. H. EWBANK to the members of the Horticultural Association at Newport.]

(Continued from page 71.)

SPEAKING of winter flowers, by which I mean those that blossom in the dead time of the year—long before *Helleborus colchicus* has put in any appearance, and running a race with *H. niger* itself—I know of nothing which more astonishes a beholder for the first time than some *Irises* do. *Iris stylosa* and its very desirable varieties, such as *pavonina* and *speciosa*; *Iris Histrio*, *I. histrioides*, and *I. Danfordiae* charm away the desolation of winter, and, at all events in the Isle of Wight, lighten up the borders in a way which could never have been suspected beforehand.

I was once walking along the road in December with a blossom of *Iris stylosa* in my hand, and I happened to meet Sir W. Hutt. A flower was certain to draw him, and he stopped me and asked me what I had chanced to get hold of. I told him at once, and he then wanted to know where and how it was grown. I explained to him that it came from the open border, and called for no attention at all, whereupon he remarked, "How foolish I am to spend so much money for coals to grow Orchids if you can do a thing of this sort without any expense." *Iris stylosa* is of a most captivating lavender colour, very delicate indeed, and quite certain to please. There is also a white form of it, which should not be overlooked. The great mistake in growing it is that of catering for it too much. It does best in a dry, hungry soil, and will then blossom profusely.

Iris Histrio is a most charming little bulb, and quite as much at home with me as if it were on the slopes of Lebanon. It often comes upright through the snow, and is quite a winter flower. It differs from *Iris reticulata* mostly in point of colour, which, to use Professor Foster's words, is as follows:—"The fall in its central parts is of creamy white dotted over with blotches of a bright blue; these blotches fuse together at the edge and tip of the fall into a uniform ground colour of blue; the blue, however, is not a pure blue, having a slight admixture of red." *Iris Danfordiae* is of a very rich yellow, and therefore noticeable in the dark days of the year; but it is small, low, and "the inner segments or standards of the flower are reduced to mere spikes, hardly visible when it is looked at in the ordinary way." Sandy loam is what these bulbous *Irises* require, and no one should be without them who has a garden at Ryde.

And soon we come to a time when it is difficult to select. There is no season of the year like spring; there are no flowers like those of its opening months. *Flores sunt sidera Terræ*, and the early flowers of the year sparkle like jewels in the ground—so bright and so various they are. The string of names that could be given would utterly weary you. *Muscari*, *Chionodoxas*, *Scillas*, *Fritillarias*, *Crocuses*, *Anemones*, *Narcissi*, *Trilliums*, and a thousand more form a concatenation of beauty which could not be exceeded. The *Anemones* are known to you all, and I will say a word about them, as some choice must be made. The origin of the name is a matter for speculation. Some say that it comes from the Greek word *anemos*, wind, and that the *Anemone* is very much blown about in the gusty month of March, and that the flowers do not expand till then. Certain it is that they are very often found in bleak windy places; but on the other hand the flower seems able to defy any storms to which it may be exposed, and the petals cling tightly to the stalk. Another explanation is that the seeds of the *Anemone* are light as thistledown, and they are tossed hither and thither as soon as they are ripe.

There is a large number of species which come from the South of France, Italy, the Levant, Palestine, and other countries. In Palestine the masses of *Anemone fulgens* are called the Saviour's blood drops, and in some places you can hardly walk at all without stepping on them. The finest show of this sort that I have seen was on the Pic de Sancy in France, where millions of *Anemone sulphurea* and *A. alpina* were nodding together in beautiful and indiscriminate profusion. The *Anemone* has three colours—red, yellow, and blue, and in that respect it is on a footing with *Lilium*; but I do not remember anything else in the same way. *Anemone blanda* is of a rich blue. *A. ranunculoides* is yellow, and *A. fulgens* is red. In Britain we seem to have three species—*A. nemorosa*, *A. pulsatilla*, and *A. ranunculoides*; all these are most delightful in the garden, and so are *A. narcissiflora*, *A. palmata*, *A. apennina*, and *A. sulphurea*. I should be sorry to be without any one of them, and *A. nemorosa Robinsoniana* is one of the most delightful of all spring flowers, or as Mr. Nicholson puts it, "one of the prettiest of the whole genus," which comes to the same thing in other words.

There is a magnificent *Anemone*, which was raised by Mr. Nelson of Aldborough, and which takes its name from its native place. It must be 3 inches or more across, and it runs in my head that even this has been eclipsed by the efforts of Herr Max Leichtlin; if so it would be difficult to imagine anything finer. *Anemone palmata alba* is a plant that loves the Isle of Wight, and my garden in particular, but the odd thing is that *A. palmata* is not of the same mind at all. It does hold on,

and it blossoms occasionally, but the one would soon cover the whole place with its pretty stars if it only had licence to do so, and the other seems to bloom as a favour, and takes no particular interest in it.

With regard to cultivation I do not think I can do better for you than by reading a passage which is full of advice on the part of Mr. Fish, and is of great value. He says that "care should be taken when

or flowers of the next, and, of course, if they are removed or smothered in the middle of their work, these processes are either wholly arrested or imperfectly performed. Hence the great importance of allowing the leaves of Anemones and such-like plants room and time to complete their work properly. They should be planted in September or October. With regard to tuberous-rooted Anemones, it is not a bad plan to take them



FIG 24—CALANTHES.

Anemones are planted in borders that they are not cut off till they ripen and die down of themselves. It is the premature destruction of the leaves of such tuberous-rooted and bulbous plants as Anemones, Snowdrops, &c., that causes them speedily to dwindle and degenerate. The leaves of one season are always engaged in forming the roots, crowns, bulbs,

up and store them in a dry place for a few months. The reason is they often have a late and unseasonable growth. Anemones left in the ground start afresh in wet or growing weather. The strength that might have been expended in making the flower is wasted in the growth of useless leaves in late summer or autumn. It is no uncommon thing to find

Anemones with leaves early in August. The leaves generally reveal the proper time for taking up by turning yellow and flagging. If put in a tray or drawer they may be propagated by division of tuber or they may be by seed. The tuber is a rough, spreading, irregular, rather flat mass, full of gnarly-like protuberances. In most of these there is a growing point, though neither prominent nor conspicuous; the tuber may be cut into as many parts as eyes, and each will form a plant. But propagation by seed is the best and by far the quickest way of increasing Anemones. The seed is difficult to sow by reason of the mass of cotton-like down which adheres to it, being a sort of wings to carry it away. These should be separated by rubbing them in dry sand or soil until it is removed, and there should be a covering of about a quarter of an inch of dry sandy soil."

The genus *Narcissus* now comes in turn before us. The wild Daffodil is a native of England, and it is found abundantly in the Isle of Wight, but not in Scotland or Ireland. Canon Ellacombe tells us that "There are thirty-seven distinct species, besides many varieties and hybrids, and its headquarters are in the South of Europe. A few, however, are found in Northern and Western Asia, one in Teneriffe, and a few in North Africa. None of the family is found wild in America." Nurserymen's catalogues have become perfectly bewildering; so many varieties are so nearly alike. This flower has always been a favourite with the poets. Thus Keats sings:—

"A thing of beauty is a joy for ever;
It's loveliness increases. It will never
Pass into nothingness.
In spite of all
Some shape of beauty moves away the pall
From our dark spirits. Such the sun, the moon,
Trees old and young, sprouting, a shady boon
For simple sheep; and such are Daffodils,
With the green world they live in."

And Herrick cannot be surpassed:—

"Fair Daffodils, we weep to see
You haste away so soon.
As yet the rising sun
Has not attained his noon.
Stay, stay,
Until the hasting day has run
But to the evensong."

The best division of *Narcissus* is into three groups (*Baker*).

I. The Large-crowned or Magni-coronati, which includes those in which the corona equals or excels in length the divisions of the perianth. Here may be placed the *Corbularias* and the *Ajax* section, and such Daffodils as *maximus*, *obvallaris*, *pallidus præcox*, *cernuus*, *minimus*, &c., belong to it.

II. Medio-coronati, of which the crown is half or not more than three-quarters as long as the divisions of the perianth. To this belong *N. incomparabilis*, *Parkinson's Peerless Daffodil*, *N. calathinus*, *N. triandrus*, and others.

III. *N. Parvi-coronati*, of which the crown is less than half as long as the divisions of the perianth. In some it is little more than a raised line; in some it is highly coloured. *N. orientalis* and *N. papyraceus* may be mentioned here, and *N. poeticus* belongs to this group, which is one of the greatest favourites of all.

But my reason for saying a word about *Narcissus* is because I think it is especially a flower which loves this part of the world. Of course there are difficulties about growing some of them well, but it is the exception to the rule when any special trouble occurs. Even the little tender *N. monophyllus* will often do well in the open, and I have blossomed it here several times with nothing more than a little bit of glass over its head to keep off frost and rain. There are some plants which I pre-eminently regard as Isle of Wight plants—by which I mean that while they certainly refuse to do well in many gardens on the mainland, they blossom and increase here in a most free and satisfactory manner. Of such I consider *N. triandrus* to be a very conspicuous example. The petals are reflexed as are those of the *Cyclamen*, and it is without doubt one of the most elegant and graceful of all the flowers by which the month of April is adorned. It seems to have been introduced into this country about 300 years ago, and then it was lost and afterwards recovered. The bulb is very small, rather thin and long; the leaves, generally in threes, are exceptionally tender, and there is everything about it to suggest that it is not very robust.

N. triandrus loves the slight attentions which it receives, and it multiplies in this garden in the most rapid manner. Only last year Messrs. Burbidge and Barr paid me a flying visit in the spring, and Mr. Barr very soon pitched on some of the clumps of *N. triandrus*, with which he seemed to be surprised. Nor is this all which might be said on this head. I fancy that, as a rule, *Narcissi* multiply here in an exceptionally rapid degree, and I am quite certain that they blossom here more satisfactorily than they do in many other places, and they are very highly coloured. Mr. Boyd of Melrose, N.B., told me some years ago that he was very much surprised with the performance of *N. maximus*, both as to freedom and colour, and that he had nothing like it in Scotland.

A very long list might be given of the *Narcissi*, which do well in my hands, but these remarks must be cut short. I would merely add that Mr. Fish has given some good cultural advice to those who have difficulties to contend against. He says, "That the utmost care should be taken of the leaves till they are ripe; in exposed places the winds are apt to twist and bruise *Narcissus* leaves into uselessness. As a rule

they are generally quite free from disease. A species of dry rot may be sometimes found in some bulbs, which is probably the result of excessive drying or keeping the bulbs too long out of the ground. Jaundice is a more difficult matter, and what are called miffy species not seldom go off in this way. A change of soil, the removal of the flower stems as soon as they appear, are the best palliatives that can be named. Blindness is a fault rather than a disease, and is generally caused by overcrowding or starvation." The Rev. G. Engleheart presides over the genus in this country, and with very conspicuous success. Some of his seedlings show a marked improvement upon anything we have had before.

(To be continued.)

IN A GLOUCESTERSHIRE APPLE ORCHARD.

I WAS much interested in reading the article under the above heading by Mr. Alex. Dean which appeared in the *Journal* of the 21st inst., page 54.

It was my privilege to be employed for ten years in the gardens at Lydney Park, and although some seventeen years have elapsed since, I have a vivid recollection of the grand crops of Apples the orchard in question used to produce at that time, having helped year after year to gather and store the fruit which was required for use of the family. Blenheim Orange and King of the Pippins were much in evidence, with other good varieties for culinary use. Cider being the working man's beverage in that part of the country, a good deal of the fruit is used for that purpose and a certain quantity supplied to the men daily, such fruit realising good prices for the purpose named.

It is pleasing to note that Mr. Bathurst, the generous and popular owner of the Lydney Park estate, is animated with a desire to arouse interest amongst his tenants and neighbours in the matter of fruit growing, which no doubt will stimulate them to further energy in the production of British-grown fruit, for which the soil and situation of the locality is admirably adapted; and after Mr. Dean's excellent advice it may be expected that more of the better varieties will be planted in the future than has been in the past.—R. MORSE, *Berkley House Gardens, Frome*.

EXHIBITING DAHLIAS.

I WISH to know to what size show Dahlias are now grown for exhibition, and the size of stands used for twelve and twenty-four blooms respectively. Also I wish to know whether good medium-sized blooms of Cactus, decorative, and single Dahlias weigh more in the estimation of competent judges, other points being equal, than very large blooms, as some remarks in a report of the Dahlia exhibition at the Crystal Palace in 1892 led me to infer that such might be the case.

I shall esteem it a favour if you would inform me the breadth and depth of a good exhibition bloom of a Show Dahlia. I have frequently seen the measurements of *Chrysanthemums* in the *Journal*, but never remember to have seen any of Dahlias. I have no doubt that the Show Dahlia, like the *Chrysanthemum*, is now much larger than those I as a young gardener used to see at home.—H. F., *Uitenhage, Cape Colony*.

[*Size and Qualities*.—The average size for exhibition of a double Dahlia, either "Show" or "Fancy," is 5 to 6 inches across, and 3½ to 4 inches in depth. The "points" of a Show Dahlia are the same now as twenty years ago—fair size, good depth, globular shape, petals well cupped, the centre full and high, but not above the edges of the surrounding petals, and the colours clear and good. Mrs. Gladstone is still the most perfect Show Dahlia.

[*Size of Stands*.—For twelve blooms, 24 inches long, 18 inches wide, holes 6 inches apart from centre to centre; legs 9 inches high at the back, 3 inches at the front. For twenty-four blooms, 48 inches long, and other measurements as before, all painted dark green and varnished. Cactus Dahlias are sometimes shown in this way, too, as single blooms, but most fanciers would think it absurd to do the same with singles.

[*Comparison of Qualities of Different Sections*.—Cactus and single Dahlias are not exhibited together or against doubles in this country, except in groups for effect; but if they were shown against each other in stands the doubles, if perfect blooms, would almost certainly win, a well-grown double Dahlia being one of the most perfect florist flowers that can be produced. Single, Cactus, and Pompon flowers are invariably exhibited in bunches of six or nine flowers, triangular in shape. The qualities of a Cactus Dahlia are medium-sized flowers, produced on long stalks well above the foliage, the petals well twisted, curled, and pointed, the centre full—that is, not showing an "eye," and the colours clear and distinct. Fasilier or Mrs. Wilson Noble are good types.

[*Decorative Varieties* are not recognised now by the National Dahlia Society, but the good qualities consist in freedom of flowering, and displaying the flowers above the foliage for garden decoration.

The points of a good single for exhibition are medium size, petals round and reflexed, but not too much so, and the colours clear and distinct. Mrs. Henshaw (scarlet) is a good example.

The Show Dahlias, unlike the *Chrysanthemum*, have not progressed very much in size for ten years. New colours and form are the greatest improvements. Yellow Globe, John Hickling, Arthur Ocock, Duchess of York, Virginale, Chieftain, Mabel Stanton, Shottesham Hero, and Penelope are amongst the most notable examples of the introductions of the last few years that combine size and the other good qualities. The chief prizes rarely go to the largest blooms, as these are not unfrequently coarse, and coarseness is a defect.]



A TOUR ABROAD BY A HAPPY TRIO.

(Continued from page 31.)

It is certainly worthy of remark and a conspicuous tribute to the widespread influence of the N.C.S. when I say that every exhibit of cut blooms at the Ghent Show was, with one small exception, staged by members, either English or foreign, of the National Chrysanthemum Society of London. The business of judging occupied the best part of the day, and then the jury adjourned to a banquet. The following day was Sunday, and the show was beautifully arranged. On entering we were supplied with a neatly printed catalogue of the show of thirty odd pages, in which were supplied not only the names of the exhibitors and the varieties they had staged, but a list of the prizes, the names of the members of the jury, and other matter likely to be of interest to the visitors. The visitors were numerous, and evidently of good social standing. We spent several hours taking notes and observing in detail some of the more striking variations between a Belgian and an English Chrysanthemum show. Then we remembered an invitation to dine with Mr. Ed. Pynaert. Mr. Ed. Pynaert's nursery lies at some distance off in the Rue de Bruxelles, and, as he reminded us, he was something like Robinson Crusoe, for it is almost an island, being bordered by canals on almost every side. We took a stroll through the greenhouses; but our host is not a specialist in Chrysanthemums, and his stock consists principally of Azaleas, Araucarias, Palms, Ferns, Orchids, and Rhododendrons. Here we had a splendid example of Belgian hospitality. For three hours we were at table, provided with the best of everything, and both Mr. and Madame Pynaert did their utmost to make our visit enjoyable.

We inquired whether there were any establishments, either private or public, in the vicinity of Ghent where Chrysanthemums could be seen, and which were worthy of a visit, but discovered that the best plants were at the show, and so we decided in our anxiety to reach Paris to move on to Brussels early next morning. Mr. Anatole Cordonnier, the well-known Chrysanthemum specialist of Bailleur, just over the frontier in France, was desirous that we should pay his establishment a visit, and came over to Ghent to meet us and make the request in person, but we found it impossible to accept his pressing invitation.

On Monday morning, the 16th of November, we started for Brussels, and knowing the N.C.S. had a foreign member living not far away, a Mr. de Wolf, we decided to give him a call and see his collection. We took a queer-looking conveyance called a steam tramway to Ixelles, and were landed in what appeared to be the heart of a forest of Beech trees, then after a journey by tram and road found ourselves in a curious little provincial town with narrow streets and queer-looking cottages. We found Mr. de Wolf's house after several inquiries, and as he was not at home his gardener obligingly allowed us to go through the greenhouses and view the flowers. There were in all four curvilinear houses full of Chrysanthemums. The total number of plants amounted to about 2000. The best of them were arranged in four rows in a large structure measuring about 100 feet in length by 35 feet wide. They were well-grown dwarf plants, such as might be seen at the house of an English suburban enthusiast, most of the leading varieties being represented. We were pleased with what we saw, for it was the only opportunity as it happened that we had of visiting a private collection while abroad, and thanking the old gardener, who seemed to take a pride in his productions, we returned to Brussels, dined, and caught the six o'clock express to Paris. —C. HARMAN PAYNE.

(To be continued.)

INCURVED CHRYSANTHEMUMS.

THE General Committee of the N.C.S. has bowed to what it has considered the inevitable, and has drafted into the ranks of the "incurved" section a miscellaneous assortment of varieties, many of which have hitherto been classed, in the trade catalogues and even in the catalogue of the N.C.S. itself, as "incurved Japs," or even pure "Japanese."

In face of the general "bolt" of both exhibitors and judges from the old condition of affairs, when a "Queen" or "Empress" was the standard of the true "incurved," it was obvious that the N.C.S., powerless to resist the revolt, would probably be forced to do something; but whether the "something" which the Committee has done will not, in the long run, be found to have provided a remedy far worse than the disease is a question to which it will require the lapse of a season or two to supply the conclusive answer. It seems to me that the exhibitor, having asked for a draught of water, has been treated to a deluge.

With the admission of these twenty-two new so-called "incurved"—the pioneers obviously of an army soon to come—we may take it that the knell of the old Chinese incurved has been rung. It will be interesting indeed to compare the "best eighteen incurved" of 1898 with those of a couple of years ago.

It was perhaps inevitable, in view of the strong pressure which had arisen, to somewhat loosen the stringency of the old standard of an "incurved" so as to permit of the introduction, after a full knowledge

of the new candidate had been acquired, of certain of the new varieties which seemed almost to attain to the old standard; but surely, when we analyse the crowd just admitted, one cannot resist the conclusion that the matter has been altogether overdone.

But the chief danger lies in the future. The only principle which is to guide future action seems to be that stated in the resolution passed, "That the position of any variety shall be determined by the majority of those voting." Naturally the majority must prevail where there is a difference of opinion, but where do we find the standard which is to influence and form that opinion, and so provide that it shall be a constant quantity, and not vary with the individual notions of the members of the Committee in the future?

I am aware that the action of the Committee in making these additions to the incurved class is supposed to have been upon the basis of the Society's definition of an incurved, but such a suggestion can scarcely be accepted; certainly not if we are to believe for a moment in the consistency of those responsible for the definition in question. The definition stands in the centenary edition and also in the Jubilee edition of the Society's catalogue, and with this definition before them Messrs. W. H. Lees, C. H. Payne, and H. J. Jones, as members of the Revision Committee, classed Duchess of Fife and Mrs. Airdree as Japs, and Egyptian as an incurved Jap.

The same gentlemen, with others, on the late Special Committee proceed to group these varieties with the "incurved," as "being varieties which may be regarded as incurved, according to the standard of characteristics set forth on page 20 of the Jubilee edition of the Society's catalogue." It is all very well to take the bull by the horns in this fashion, but which do these gentlemen mean, and on which occasion were they right in their interpretation of the definition? If these varieties had the "characteristics" of the true incurved when the catalogue was revised for the Jubilee edition, why did they class them as Japanese?

Again, Miss L. D. Black, classed by Mr. Wells in his catalogue as a "Jap," which, "on second crowns or terminals, is almost as pure an incurved as it is possible to get," and which was, so late as the 25th of November last, declared by a large majority of the Floral Committee of the N.C.S. not to be an "incurved," is, on the 25th of January inst., unanimously declared by the Society's Committee to be one. And other cases might be cited. Of course, there is the convenient retreat covered by the plea that the true character of the varieties had only been discovered after the earlier classification; but this only adds emphasis to an old complaint, and is an admission that classification takes place before the varieties have been fairly tested. And how about such discoveries of latent character between the 25th of November last and the 25th of January inst.?

The cases which I have cited show that we have drifted away, for better or for worse, from the old standard, and have now no real standard applicable to the "reformed incurved" at all. What can more forcibly demonstrate the confusion which prevails at the present time than the following?

The Special Committee declares Sir Trevor Lawrence, which Mr. Jones in his catalogue calls an "incurved," to be a "Japanese incurved," and so classes it; and then defers the classification (votes being equal) of Harold Wells, which, in fact, is a primrose sport from Sir Trevor Lawrence itself. Truly a curious result of the "one man one vote system."

"What is done cannot be undone," but it behoves the Society to lose no time in getting back on to safe and definite lines by carefully constructing a definition which shall be a reality, having regard to the character of the varieties now admitted as "incurved."

The floodgates have been opened, and the stream has commenced to run with a vengeance. Unless it be confined within definite and recognisable limits it may soon get altogether beyond control.—TOKIO.

THE VICTORIAN MEDAL.

AN admirable suggestion of yours, Mr. Editor, so far as relates to the interests of the Gardeners' Benevolent Institution; but it has the demerit of suggesting that the proposed medal of honour may thus be purchasable, a conclusion from which the Council of the R.H.S. will doubtless revolt. I have no objection to give a guinea to the Benevolent Fund, but not to secure some medal equivalent. If the Committee of the Benevolent Fund had proposed to give to every subscriber to their Victorian Fund of 1 guinea some sort of medal specially struck for the purpose, and commemorative of the year and the event, then might a capital stroke of business have been done, and in such a way as to provoke no hostile comment.

A medal for honour, or merit, or service, or whatever object proposed to be given, must not in any way be associated with cash payments. However, it does seem to me that in the ranks of horticulture it would be nearly as easy to name 1000 good men deserving the honour as to name twenty. There are numbers doing good and honest work in their respective spheres, though often unnoticed, who are in their ways as meritorious as are others who have greater opportunities. That much you, Mr. Editor, know as well as I do. With respect to medals for special work, what I meant was that whilst these Victorian medals would probably be given for general service to horticulture, special medals, such as those of the Fruiterers' Company, could only be secured by special work or service.—A FELLOW OF THE R.H.S.

[A good "Fellow," too, and we are glad by having nearly drawn a guinea from him for the Gardeners' Benevolent—it only needs to be

sent to us to be forwarded. We quite anticipated the objection to our proposal, which is valid, but if it earned a guinea to the charity few will complain. It would seem that our friend's supplementary proposal does not differ very materially. He had better send his guinea, lest, peradventure, he should become a medallist and then object to pay—"on principle."]

LLANGEDWYN.

"FAR from the madding crowd" is literally true of Llangedwyn, one of the Welsh seats of that illustrious family—the Wynns of Wynnstay. It is best approached by road from Oswestry, a distance of about twelve miles, and given summer weather it is a most enjoyable drive; not so, however, in dry windy weather, for the limestone dust from the roads and the lime itself from the numerous lime kilns *en route* combine to prevent any undue gazing at the scenery.

If we digress slightly through a valley running nearly parallel with the Vale of Llangedwyn we are repaid by a beautiful panorama of mountain scenery, and whilst almost lost in admiration we come upon a site of an old habitation of which hardly anything besides a mound and a moat remain, denoting the once stronghold of the wise and brave leader of the "Cymry" in the troublous times of Henry the Fourth, who himself is supposed to have set fire to the above stronghold during the temporary absence of the chieftain, "Owain Glyndwr." Leaving "Lycharth" and its remains we cross the hill into the Vale of Llangedwyn, and quickly find ourselves within the beautifully kept grounds of the mansion.

The Dowager Lady Williams-Wynn, an enthusiast in gardening, has done great things during her residence in transforming the strictly formal garden into one of the most interesting to be found in the country, and Her Ladyship's good taste and enthusiasm are creditably reflected in the head gardener, Mr. Squibbs, who served formerly in the capacity of foreman at Wynnstay.

The first objects of admiration on approaching the grand entrance are the stately Limes, which form an avenue leading to the mansion, its only drawback being that it is a wee bit short. The church on the opposite side of the main road faces the entrance, and forms a pretty picture as seen from the house through the avenue. To the left of the avenue is an extensive kitchen garden, divided diagonally by grass paths, and devoted to lots of choice flowers, besides the culinary necessities. Roses in abundance, gems of the herbaceous families, of which Her Ladyship is particularly fond, Dahlias, Gladioli, and most other kinds. We noticed a fine plant of *Romneya Coulteri*, the picture of well-doing, which flowers abundantly; and the cream of florists' flowers might be seen here in all kinds of happy nooks.

A peep into the glass department within the walls in the summer reveals a state of high-class gardening, and if anything must be specially mentioned it is the splendid collection of tuberous Begonias, which include the most up-to-date doubles and singles. We pass with the bare mention Vines and Peaches with a general verdict of excellent, and come to a cool lean-to house devoted to Roses—Teas and Hybrid Teas—which are a remarkable success, and, as can readily be imagined, of considerable value during early spring. Indeed, the Roses in and outdoors seem to thrive admirably, and whilst still under the spell of those in the house referred to we emerge suddenly upon some veterans whose charms are resistless. One is a *Rêve d'Or*, occupying and furnishing completely a high wall and trellis, about 30 feet run, in the happiest condition, and an equally good companion plant of *Bouquet d'Or*. How many a gardener would delight in having such a pair of pictures!

Within the semicircle where these Roses are, specimen Hollies, beds of *Tritomas*, splendid masses, which are heavily mulched each autumn, with grand results; autumn-flowering Heaths, used as borderings; and a fine plant of *Choysia ternata* were the chief items, the latter indicating either a greater hardiness than it is usually credited with—or a better climate than we would expect at so high an elevation. Near us is a fine specimen of Tulip Tree, and as we proceed we come in sight of some grand old Box hedges 9 or 10 feet thick and as much high.

We are now on the lowest of a series of terraces which rise on the naturally sloping ground flanking the mansion to the right, or the opposite side from the kitchen gardens. Each terrace has its retaining wall, and these are variously furnished with Apples and Pears, Apricots (a fine lot of trees), Peaches, and Plums. The higher terraces, which comprise the flower gardens, have their supporting buttresses clothed with Clematis in all leading sorts and colours—a very pleasing effect between the fruit trees. The borders to the front of these walls are well furnished with herbaceous plants, a rich and varied collection; plentiful use is made of choice annuals also during summer, but at no time are these borders dull and uninteresting; and whilst it occurs to us, the beds of Pæonies which are in season such a feature here, we had already passed in the other portion of the garden.

A platform at the end of one of the terraces enables us to have a splendid view of the flower garden, to the back of which a closely clipped Laurel hedge merges in the woodland; a splendid *Cedrus atlantica* stretches its limbs over a large space of lawn, in which formal beds of the ordinary summer bedding plants with serpentine and scroll beds are well and not too thickly arranged. The dwelling itself is snugly clothed with a variety of creepers, so that hardly room for another is left; standard-trained Heliotropes form a sentinel-like row next the front of the house, standing in beds, the dwarfer occupants of which for the most part are tuberous Begonias.

We are sorely tempted to enumerate and dwell on the gems in the herbaceous borders, but they are too numerous, and our scribble would bear so much semblance to a trade catalogue; so we forego this pleasure, and hasten to prepare for our twelve-miles drive.—BRADWEN.

DOUBLE YELLOW DAFFODILS.

DAFFODILS again! It is nearly two years since I wrote about this old Daffodil for flowering from Christmas onwards. With experience, taking one season with another, there is no difficulty in doing this, but to accomplish it no time must be lost from the lifting of the bulbs, boxing them, and pushing them forward in their various stages as rapidly as possible. This year we did not have them in flower at Christmas. We took things fairly easy, because we had no need for them at that festive season, and we had such an abundance of Chrysanthemums. We were, however, able to cut the old double Daffodil during the early days of January, and had ample with which to furnish a dinner-table on the evening of the 10th ult. for twenty-four people. How we manage these Daffodils may be useful to others. I know it will from inquiries received, and therefore I will give every detail of culture necessary.

I obtain my bulbs from my father in the fens of Lincolnshire, where the old double "Daff" is at home and many other kinds beside. He lifts my bulbs when the foliage is dying away, and the leaves have practically done their work, consequently a fortnight is saved. The bulbs are spread out in the sun to dry, sorted, and dispatched. I have them sent with the old roots attached, not pulled off. Perhaps when taken off the bulbs look better, but it is only a matter of appearance. By this method I have the bulbs before the trade receive theirs, and after they do receive them some delay is occasioned by the further process of cleaning and sorting.

Directly the bulbs come to hand they are turned out for fear they should become heated, and are at once packed closely together in boxes. The boxes are about 2 feet long, 1 foot wide, and 3 inches deep. They can be any size. I like them a trifle deeper. A little leaf mould or old Mushroom bed refuse is placed at the base, then a layer, generally of old potting soil. Any kind of soil will do provided it is fairly light and rich. The boxes should be full of soil well worked amongst the bulbs and made firm. No water is given, the soil must be intermediate for moisture at the time of boxing.

After boxing they are placed in a fairly cool place outside and covered with fine ashes, a good depth, say 9 inches, so that we are certain the soil in the boxes will not become dry. They remain in this position for about six weeks, or until the boxes are a mass of roots, and the tops have grown about 1 inch. The next move is into a cold frame, the lights closed, and a mat thrown over, admitting light gradually. They soon turn a semi-green. Let me here say no water is given in this stage, not even syringing; as a rule with the shade and the frame closed sufficient moisture is condensed upon the plants for their requirements if they stand upon a base of ashes. Cultivators are too fond of pouring water into the pots and boxes of bulbs in their early stages.

From this stage, that is, from the time they are semi-green, two or more boxes according to requirements are removed from the cold frame. Where they are removed to is somewhat difficult to describe, but it is a position we have found from experience to suit them exactly. The house in which they are placed is a cool Carnation house, span-roofed, and in the centre the main pipes enter by means of a brick chamber, the end into the house being open. A little heat always comes up in this position, what the temperature is I cannot say. The boxes are stood on the floor opposite this open chamber, and one side of the boxes soon displays signs of movement, when they are turned round until activity is visible over the box. This is rather a drying position, but the boxes are not watered, only syringed twice daily.

Some may think we grow Daffodils without water, and thus attribute our success; such is not the case. Our object is to keep the soil in which they are boxed in an intermediate state for moisture as long as possible, and after the flower buds are visible we water freely, but resort to no system of feeding by means of liquid manure. If the soil displays a tendency to be dry, we give a good soaking and then follow the syringing process again. From the floor of the Carnation house we remove the boxes to any house where a genial temperature of about 55° is maintained, where they remain until the flower buds are visible all over the boxes. From this they are placed in a temperature of 65° to 70° at night. We do not believe in an excessive high night temperature, and really prefer 60° to 65° to the higher one. If wanted by a given date, a high temperature may be maintained with safety without the fear of many going blind—a few odd ones will certainly do so. When open we remove them to cool quarters again, if only for a day or two, before cutting, which gives strength and solidity to the stems and foliage.

These are the principles which we follow, and a very similar method is adopted for early Tulips.—WM. BARDNEY.

ENDIVE.—The Endive is usually esteemed as a salad plant, but some people consider it too bitter for that purpose, and Professor Waugh states in a late bulletin that it makes most excellent greens when cooked. The variety known as the Ever White Curled does not run quickly to seed, and when blanched like Celery or Cos Lettuce by tying up the leaves or drawing the soil up about the plant it makes an attractive salad plant. For eating cooked, however, it is best to take the plants when very young before they have time to make heads and when they are in their tenderest stage. The seed can be sown early in cold frames or in the open ground like Lettuce, and of course plants can be grown in from forty to fifty days at any time during the summer, but in the very hottest weather they are not of the best quality. Autumn-grown plants can be taken up with some earth adhering to the roots and stored in a dry cellar or in a cold frame for winter use.—("Garden and Forest.")

LILIUM CANADENSE.

THIS usually grows about 2 feet high, producing slender stems, clothed, lanceolate leaves arranged in whorls, and terminated by a few pendent flowers; the perianth is bell-shaped, yellow, spotted inside, especially below the segments, slightly recurved (see engraving). It is a very distinct and, to my mind, pretty species, and can easily be distinguished by the bulbs, which are often supported on almost naked runners. It was one of the first introduced Lilies from America, having been figured by Parkinson (Parad. 32, t. 2), where also a good description is given. It is very variable in character, mainly in colour, as distributed over the continent of North America, passing from yellow to deep orange red.—C.

THE YOUNG GARDENERS' DOMAIN.

R.H.S. EXAMINATION.

I MADE a promise recently which the Editor has allowed me to keep, and below will be found my friendly lecture.

The R.H.S. examination will be held this year on the 6th of April, and all candidates wishing to sit must send in their names to the "Secretary, 117, Victoria Street, London," not later than the first week in February. If any young gardener would like to sit, and there is no centre near, he should ask the clergyman or schoolmaster in his district to conduct an examination on his behalf. On the night of the examination a paper of questions is given to each candidate. Look through the paper carefully, and read the rules, if there be any, following them out explicitly. Then read through the questions, and mark those you can answer best, selecting and answering the easier questions first, leaving the more difficult until last.

Before beginning to answer the questions, read each one through carefully and try to understand its real meaning; then give your answer clearly, in the fewest words possible. Read through your answers, and see that you have made no mistake, or left anything unanswered. It is always best to divide the question into parts where several items are asked; take each part separately and answer it, putting *a*, *b*, &c. (in brackets), before the separate answers, similarly to the way I have in my answers.

Make use of every minute of the two and a half hours allowed—which I think is half an hour too short—and only reply to what you are asked, for I know from experience what a tendency there is to drag in something which has nothing to do with the question. My advice to those who intend to try to gain the medal, or a first-class certificate, is, every night try and read something about the work you have that day been engaged in doing, and when finished, ask yourself a question and write out an answer to it. Read how others do the same work in which you are engaged, and try to think which method is best. Buy Mr. J. Wright's "Primer of Horticulture" (1s.), Mr. R. P. Wright's "Agriculture" (1s. 6d.), and Mr. J. Oliver's "Elementary Botany" (2s. 6d.), and from these you will be able to get sufficient information of a scientific and practical nature to answer any questions you may be asked at the R.H.S. exam.

And now, young gardeners, take my advice, go in for the exam and win, and if you get the medal before I do, no one will be more pleased at your success than—A STUDENT.

POTTING.

FIRST in this important branch of plant cultivation we must have clean pots, and a stock should always be ready when wanted. If dirty pots be used much harm will be done to the plants by their roots clinging to the sides when the plants are turned out for repotting; and besides, dirty pots are unsightly and discreditable.

Next comes the draining of the pots. This must be carefully done, or stagnation at the roots will ensue, ending in the ruin of the plants. The proper way to drain a pot is to place the outer part of a piece of potsherd over the hole, cover this with a layer broken smaller, finishing with the smallest at the top. As to the depth of drainage required, judgment must be exercised, according to the nature of the plant and the size of the pot. For thumbs two or three pieces would be ample, whereas for a 5-inch pot not less than an inch should be given. A very good guide is, for every 4 inches in depth to allow 1 inch of drainage. Protect with a layer of sphagnum moss or turf, to prevent any of the soil being washed down and choking the drainage.

Soil used in potting should neither be too wet nor too dry; the former will probably become sour, while the latter will not take the water properly. The soil should be rough and open—never sifted, except for cuttings. The chief materials used in potting are fibry loam, peat, leaf mould, sand, horse, cow, and artificial manures. The loam and peat should be broken in pieces with the hand, in different sizes, from a horse bean to that of a hen's egg, according to the size of the plant.

The plants to be operated upon should be watered at least a day before potting, so as to properly moisten the ball. The plant after being potted will not then need water for some time, and the roots will heal that may have been damaged in shifting from one pot to the other. In potting never fill the pots full of soil, but leave space for sufficient water to pass to the drainage. For plants in 6-inch pots three-quarters of an inch suffices, up to about 2 inches for the largest pots.

In using the new soil, it should be used of the same firmness all

round as the older central ball. For hardwooded plants the soil requires to be rammed solid, to prevent the water making its way down the sides of the pots, leaving the centre dry. For stove plants the soil should always be warmed through, so as not to give the roots a chill, which is harmful.

After potting the plants should be kept rather closer, until root action has commenced, shading from the hot rays of the sun and syringing them occasionally, again bringing them gradually to full light and air.—J. W.

POTTING CATTLEYS.

FIRST, the pots must be clean and of various sizes, while if new they should be soaked before using them. The crocks should also be clean, and as large as they can be used. The soil must be good fibrous peat, broken to about the size of hen's eggs; if it is rubbed on the hands two or three times whilst breaking most of the small particles will be removed. When much has to be prepared a coarse sieve may be used for the purpose. Potting sticks made of hard wood are necessary. One should be about 14 inches in length for pressing down the crocks, the



FIG. 25.—LILIUM CANADENSE.

other 8 inches for the soil; both should be somewhat pointed, and if rubbed on a smooth piece of iron the hard smooth surface imparted will work freely in the soil.

Imported plants must have the roots loosened, leaving enough to help to fix the plant when potting. Sponge the plants with soapy water, using a rather stiff brush for the pseudo-bulbs, taking great care not to injure the eyes or buds at the base. Six-inch pots and larger may be half filled with crocks, using straight ones, and placing them upright, working more in when the plant is in position until the pot is nearly three parts filled. With smaller pots it is best to hold the plant in position with one hand, working the crocks amongst the roots with the other. Keep the back bulbs against the side of the pot, and if there is room for them to make a season or two's growth in the pot it will be large enough. When there are several leads some must be placed towards the centre as well as the sides, thus making good round plants; if this is neglected there will be nothing but old bulbs in the centre, which make the plants unsightly.

Some growers fix their plants with crocks, placing one end against the rhizome and the other against the pot, letting them stand a little above the soil and keeping clear of the eyes. This is the method I follow, as it prevents the soil going together and getting sour. A stake ought to be placed in the centre of the pot for securing the tallest pseudo-bulb, and keeping the plant firm. If the crocks are straight and placed in the pot upright, the stake will drive down straight; if not, it will loosen the crocks and disturb the plant, and a slanting plant looks slovenly.

Begin potting at the front of the plant, which should be a little

above the rim of the pot, working the peat in firmly, keeping the rhizomes clear; a few heads of moss may also be worked in as the potting proceeds, but not too thickly, as it keeps too wet for a *Cattleya*. When finished the stick should be run around the rim of the pot, making a small groove so that the water will soak through the peat. Finish staking and tying the plant into shape, having the stakes the same height as the pseudo-bulbs.—SECOND OF THREE.

(To be continued.)

GROWING AND FORCING LILY OF THE VALLEY.

No flowers are more esteemed during the dreary months of winter than the fragrant Lilies. They are equally welcome in sprays, wreaths, bouquets, or glasses for house decoration associated with their own charming foliage. When retarded crowns are available for autumn and early winter work, and specially prepared English and Dutch crowns can be procured for early forcing, there is no difficulty in keeping up a supply if good bottom heat is provided.

I wish now to draw attention to a system which combines the minimum of labour and expense with very satisfactory results. To begin with, one must have a good plantation of well-grown crowns established for three or four years. Lilies delight in rich soil and a northern aspect. The crowns should be planted early in spring, 2 or 3 inches apart, in rows a foot asunder. The after treatment consists in keeping the surface free from weeds, affording an annual top-dressing of leaf soil or well-decayed manure, and seeing that the plants do not lack water in the growing season, weak liquid manure being beneficial. At the end of three years, if grown successfully, the ground will be a mass of crowns, and then forcing may begin.

Pieces to fit exactly into ordinary seed boxes should be cut in the early winter, and the boxes when filled stood where they will be exposed to the frosts till required for forcing. When taken in they may be stood on the hot-water pipes under a stage, covered thickly with moss and given abundance of water. In a week or two they will have started growing, and when the flower spikes are visible the boxes must be assigned a light position in a warm house.

By this treatment we have had an uninterrupted supply of fragrant Lilies since the middle of December, and the foliage developed with the spikes. I may mention that in this district (South Lincolnshire) great tracts of woodland are carpeted with Lilies which flower profusely.—O. C.

CONSERVATORY MANAGEMENT.

THIS is a very important and at the same time a very pleasant portion of a gardener's duty. It is a subject about which comparatively little is written, and I am afraid the manner in which some conservatories are managed, judging from the appearance of their interior, admits of very little being said. It makes very little difference in giving a general description of management whether the conservatory is attached to the mansion or only a house set apart for the display of collections of ornamental plants.

In the selection of climbers judgment should be exercised. There is a large variety from which to choose. *Cobaea scandens*, *Tecoma Van Volxemi*, *Clianthus puniceus*, *Lapagerias rosea* and *alba* are all well adapted to certain positions, thriving well and retaining their foliage all the year round. In the case of those climbers which are victims to thrips, green fly, and red spider, such as *Lapagerias* and *Clianthus*, it is a good plan to hang to the rafters with a lightly constructed wirework frame, which should be fastened in such a manner that it could be easily detached. The climbers should then be tied on to the framework. If this is done the task of keeping them clean will be made much easier, particularly where the conservatory adjoins the residence, when fumigating is out of the question. All that it is necessary to do is to take down the wirework frame with the climbers attached, lay it on the floor, and syringe with some insecticide. This operation does not take up much time, and it can be done much more efficiently with the plant on the ground than if it were tied to the fixtures in the roof. Before replacing it wash the rafters with a weak solution of soft soap and water to kill any insects which may be lodging in the crevices. Not only will this method be found convenient in the work of cleaning the plants, but it is equally so when the house has to be painted. Instead of being possibly one or two days in removing climbers, as is often the case, they can be taken down in almost as many minutes and without much injury to the shoots.

In many conservatories there are pillars or supports of different kinds for the roof. It is necessary that these should be covered, and suitable plants must be selected. *Acacia dealbata* is perhaps one of the best plants for this work, beautiful foliage rendering it very attractive even when not in bloom. *Asparagus plumosus* is also very useful and elegant. Plants of *Maréchal Niel* Rose are attractive in association with the *Asparagus*. These Roses should be grown in pots so that they can be easily taken out and cleaned in case of attacks of mildew or green fly. When they have finished blooming they may be taken down altogether, leaving the *Asparagus* alone to cover the pillar. There are many other plants suitable for pillar work which may be used with equally pleasing effect.

Suspended baskets add very much to the beauty of a conservatory. Ivy-leaved Geraniums (*Pelargoniums*) are excellent plants for basket culture, flowering freely, and are highly attractive. The Stag's Horn Fern (*Platycerium alcicorne*), planted in a compost of peat and sphagnum, is also very useful. This Fern will completely cover the baskets and is very effective. Another thing in its favour is that it does not require so much attention as most other plants.

In the selection of the plants which I have mentioned I have not

included any of a deciduous nature excepting the Rose. There are many of this (deciduous) class which are very pretty, but I do not favour them for conservatory decoration, preferring those which are evergreen, so that the roof is always furnished with foliage if not with flowers.—P. W.

(To be continued.)

DRACÆNAS.

ONE of our most useful foliage plants for room decoration, I think, is the *Dracæna*. Its graceful habit, combined with the richly coloured foliage, rendering it attractive in whatever style of decoration it is employed. Especially are well-grown plants adapted for single vase work in 48-size pots. To obtain good plants for autumn and winter work they should be rooted early. The stems and roots of old plants which have grown tall may be cut into lengths of from 1 inch to 1½ inch and placed in well-drained pans of light sandy soil, then plunged in bottom heat of 75° to 80°. In the case of root cuttings I would advise keeping them separate. Give a thorough watering with warm water, but withhold the water from the stem cuttings for a week or so, for by so doing they are not so likely to decay. The tops from the old plants may be readily rooted by placing them in small pots (in the compost advised) and plunged in a close hand-light in brisk bottom heat, shading from strong sun.

As soon as the young plants in the cutting pans are large enough to handle place them singly in 60-size pots, and keep them growing in brisk moist heat. As soon as these pots become filled with roots the plants should receive another shift, taking care, however, not to overpot. A suitable compost is two parts good fibry loam, two parts peat, with enough sand to keep the whole open, to which add a sprinkling of horn shavings or bonemeal. *Dracænas* are subject to the ravages of red spider and thrips, and plants are very soon disfigured if the damping is at all neglected. When the days are bright the plants should be shaded from the sun or the tender leaves will scald. A temperature of 70° to 80° will suit them best.—E. H., Osberton.

GLOXINIAS.

GLOXINIAS are very easy to grow, and should be in every collection of plants. They make a charming display when the different colours are blended together. The flowers being very delicate should be handled carefully. Dotted about in a fernery or a subtropical house shows the plants to perfection. They can be raised either from seeds or from leaves. Seed should be sown as soon as gathered, or in the spring, in shallow pans, using a light compost, watering it previously with a fine-rosed can, covered with a sheet of glass, and shade till germination is apparent. Great care must be taken at this stage not to let the plants get drawn or the soil dry, or the seedlings will perish. When large enough to move prick them 2 or 3 inches apart. When nearly touching each other place them singly in large 60-size pots, using one-third each of loam, peat, and silver sand, and a little powdered charcoal.

Stand them in a frame or pit with a good bottom heat, keeping close and shaded for a few days till they start into growth, when a little air may be given, but avoid sharp currents. Shade on all occasions during bright weather, and close early in the afternoon with plenty of moisture. *Gloxinias* should not be syringed at any time. In a few weeks they will be ready for 48's, using the same mixture as before, adding a little leaf soil.

On all occasions use clean pots with plenty of drainage. Some growers prefer to pot firmly, but my experience has been the reverse. When the plants have commenced to root into the new soil give a little liquid manure once or twice a week till further established, when it may be given every watering. A great point in growing *Gloxinias* is to feed them well, also damp the walls and pathways with the liquid. They will revel in this atmosphere, and give large clusters of blooms with handsome foliage. The night temperature when growing should be 60°, with a rise of 10° in the daytime; when in flower 55° to 60°.—DUNELM.

VINE CULTURE.

(Continued from page 80.)

WHEN the Vines are in flower give the canes a gentle shake two or three times in the middle of the day, which is all free-setting varieties like Black Hamburg, Black Prince, Gros Colman, Gros Maroc, Appley Towers, Buckland Sweetwater, and Foster's Seedling require. Muscats, white and black, should be gone over with a camel-hair brush, or a rabbit's tail will do quite as well, first brushing over a bunch or two of Black Hamburg if in flower, as it has always plenty of pollen; Appley Towers will do as well, and is in flower after Black Hamburg in the same house.

The most difficult varieties to set well are Black Morocco, Canon Hall Muscat, Alnwick Seedling, and a variety of Alicante of which there is one cane here. Have two rabbits' tails, one well dusted with pollen off some free-setting variety; with the other gently take off the little globules of water at the point of the pistil, then with the first tail or brush apply the pollen. Without doing this most of the berries will be stoneless. When the berries are stoning the house may be kept cooler till the berries commence swelling again, when the thermometer may run up to 90° after closing in the evening without doing any harm.

When the Grapes commence colouring more air will be required and ventilation continued much longer in the evenings; in fact, a little all night will do good if the nights are mild. With regard to thinning the bunches and the distance between each berry we must be guided by the variety; Muscat of Alexandria and Gros Guillaume, when the shoulders

are well strung up, require little thinning. Small-berried sorts, such as all the Frontignans and Black Prince, may be left fairly close; Alicante, Black Hamburg, Buckland Sweetwater, Golden Queen, Mrs. Pearson, and Trebbiano require more room; while Gros Colman, Appley Towers, Madresfield Court, Gros Maroc, and Cooper's Black (the last two are quite distinct here, Maroc being larger in the berry and never carrying the bloom of Cooper's Black, both growing in the same house), which are from 4 inches to 5 inches in circumference, must be severely thinned; also Canon Hall Muscat, which has berries as large as Orleans Plums.

To the question, Why do so many fail to grow good Grapes?—by good, I mean Grapes fit to win prizes at our leading shows—I answer want of attention in ventilation, watering, and not keeping the growths pinched back. Never let the thermometer rise much in the morning without admitting a little air, and never admit much at a time. Up to the time of the colouring of the berries you will be constantly putting air on, and taking it off, especially during March and April to keep the temperature steady.

With regard to watering the borders those inside must never get dry. Give a little artificial manure—Thompson's or Wood's Le Fruitier are good—before finishing watering, to be gently washed down. Outside borders, except in dry summers, require less water, especially if covered with leaf mould or some other retentive material. As with inside borders we give a little artificial manure when watering the outside borders, which we find does good even when watering with liquid manure from farmyard.

And now a few words on stopping the laterals. In this important duty we must be guided by the distance between the Vine and by the variety. Varieties that show bunches at the third or fourth leaf may be stopped two leaves beyond the first bunch, while those that show bunches beyond the fourth leaf stop one leaf beyond the bunch; also those that are long jointed, for instance Cooper's Black, stop all laterals at the first leaf, and if there is not room pinch out all sub-laterals. Always remember that one well-developed leaf is worth half a dozen crowded leaves.—W. T., Ireland.

OBSERVATION.

A FEW lines on the above subject may be of interest, and at the same time convey a lesson to young gardeners. Observation; what is it? A dictionary will tell us "it is the art of fixing the mind on anything." How do we observe? It should be with a combination of eye and brain, but it is to be feared it is more often with the former alone. We see something done, and think no more about it. That is a mistake. We should strive also to understand, so as to be able to do it ourselves.

What are we to observe? Firstly the kitchen garden—the one great branch, and at the same time perhaps the most neglected. Could we but devote part of our spare time to the study of it, we should not only derive pleasure, but benefit in after life. Why not make a daily round of the kitchen garden, carefully noting the routine of work, make a note of the time of sowing seeds, and as the crops come to maturity note that as well? What a study one could get out of Brassicas alone, or the Pea for instance! Then there is another branch—outdoor fruit culture. How greatly we could benefit ourselves by studying the various ways of planting, training, grafting, and pruning, also observing the different varieties as they ripen in their season. And again there is the forcing of various roots, such as Asparagus, Rhubarb, and Seakale; also Mushroom growing—all too much neglected by us. Then again, what can be gained from visits to the flower garden? The different kinds of bedding in their season and the various styles, for we must not limit ourselves to observing one garden only. The Rose garden in itself would form a most delightful course of observation. The pleasure grounds too, what could we not learn from them? Would not the study of Coniferae, and various shrubs and trees, yield both pleasure and instruction?

The glass department demands much thought. There are the various kinds of plants, all worthy of observation. And fruit culture under glass is perhaps a greater subject still. Take a house from the time of starting to the ripening of the crop, look at the various stages of growth and their requirements. There is air giving, how observant we must be in that. And temperatures, too; we are told by one very able writer that this alone is one of the hardest lessons a young gardener has to learn. Writing of temperatures brought the stokehole to my mind. We should always do our best to have our fires clear, and the surroundings of the boiler as neat as circumstances will permit.—S. S.

[This contribution on "Observation" in the present series leads us to say that a great lack of that valuable acquisition—intelligent observation—has been revealed by several correspondents. In our issue of December 31st, 1896, page 632, we gave what we thought clear instructions for the guidance and benefit of earnest young gardeners. The majority have followed those instructions in the most admirable way; but a considerable minority have either not read them or soon forgotten what they did read. The result is that we have many contributions, and most of them good, which cannot be published. Some are written on both sides of the paper, others are too crowded for revision, while several have failed to write their names and addresses on their MS. All the conditions mentioned are simple, and compliance with them is necessary for purposes of publication. In the case of accidental omissions on the part of writers of notes which have not appeared, if the subjects are quoted, also names and addresses supplied, the MSS. shall be examined. We repeat that every young gardener who aspires to become a creditable writer should attentively read and preserve the article above referred to.]



FRUIT FORCING.

Cherry House.—The Cherry is very impatient of undue warmth in the early stages of growth, particularly when the ventilation is indifferently provided. This is a vital point as regards crop, therefore commence ventilating at 50°, allowing an increase of 15° from sun heat with proportionate ventilation, closing the house at 50°, 45° being sufficient by day artificially, and 40° at night. The trees advanced slowly from December are now unfolding their buds, those previously forced being in blossom, and will need attention in fertilising the flowers on fine days, using a camel's-hair brush, bunch of feathers, or rabbit's tail mounted on a small stick. Where the flowers are not expanded it is advisable to fumigate the house, so as to make sure that the trees are free from insects, repeating at intervals of a day or two. Examine the border to see that there is no deficiency of moisture, affording a thorough supply of water when necessary. Trees in pots will require more frequent attention. Any alterations in the way of introducing fresh trees must be completed without delay, and taking precautionary measures, so that shading may be applied to such trees whenever sunshine is powerful, and in order to promote the re-establishment of the trees they should be lightly sprinkled more frequently, and other surfaces moistened, but avoid making the soil sodden.

Cucumbers.—Young plants being now ready for transference to the hillocks in the Cucumber house, which, having been thoroughly cleansed and the soil placed in a few days previously to become warmed, they should be planted. Press the soil firmly about each plant; place a stick to each and secure it to the first wire of the trellis. If bright sunshine occur shade lightly in the middle of the day to prevent flagging, and after the plants become established it can be discontinued, subjecting the plants to the full influence of the sun. Keep the night temperature at 65°, 5° less on cold, but 5° more on mild nights, and 70° to 75° by day, with 80° to 90° from sun heat, closing early in the afternoon, with plenty of atmospheric moisture on fine days. Plants in bearing will need copious supplies of liquid manure in a tepid state. Crop lightly, and keep the plants clean. Avoid over-watering, keep the foliage thin, remove bad leaves and exhausted growths, stopping others one or two joints beyond the fruit as space allows, maintaining a succession of young growths for bearing.

Cover the lights of dung-heated frames with double mats at night, the linings of the beds being attended to weekly or fortnightly, according to the state of the weather, keeping a supply of well mixed manure and leaves in readiness for that purpose. (See Melons.)

Figs.—*Earliest Forced Trees in Pots*—Pinch out the points of the shoots when they have made five leaves. Maintain a steady temperature of 55° to 60° at night and 65° by day, advancing to 75° with sun heat, closing early and allowing an advance to 80° or 85°. In dull weather a little extra heat early in the day will allow of ventilation, if only for an hour or two, to give a change of air, which tends to solidify the growth. Keep the bottom heat steady at 70° to 75°, introducing fresh leaves as required. Red spider must be kept down by syringing, but always early in the afternoon, to allow the leaves to become dry before night. In dull weather it is better to damp the paths than to keep the plants constantly dripping with water, which hinders evaporation and prevents the elaboration of the sap.

Early Forced Planted-out Trees.—As these are growing maintain a temperature at night of 55°, and 60° to 65° by day, with a rise of 5° to 10° from sun heat. Syringe twice a day on bright days, but in dull weather morning syringing, with damping in the afternoon will be sufficient, ventilating freely on all favourable occasions, as a weakly growth cannot afterwards be made stout nor thin foliage become thick, therefore strive for sturdy growth, well developed, thick leathery leaves from the commencement. A little partially decayed lumpy manure placed on the border will attract the roots to the surface, whilst not depriving the soil of air, and water in a tepid state should be given as necessary, but avoid overwatering in the early stages, especially with liquid manure.

Second Early Forced Trees.—Where there is more than one Fig house with the trees planted out the second may now be started, and these will give a first and second crop of Figs. The trees bearing on the extension growths produce grand fruits, those having borne and become bare being cut out so as to give place to sturdy well-furnished growths, thinly disposed and kept clean. Bring the border into a thoroughly moist state by repeated supplies, if necessary, of tepid water or liquid manure. Syringe the trees occasionally, damping the paths twice a day. A temperature of 50° at night and 55° by day is sufficient to commence with, advancing to 65° from sun heat, ventilating freely on all favourable occasions.

Melons.—A brisk bottom heat is necessary in the cultivation of early fruit, and it should be durable. In houses hot-water pipes are unquestionably the best, but for pits and frames fermenting materials are relied on, and with good results. Stable litter and an equal proportion of Oak or Beech leaves should be thrown together about a fortnight before they are required, thoroughly incorporating them, and if dry they must be moistened. In a few days they will, if sufficiently moist

become heated, then turn the material before violent heat is produced, outside to inside, damping any dry portions, but in case the heating does not occur quickly the materials must be turned after a few days and receive water as required. In making hotbeds select a dry place or employ a layer of faggots for the foundation, taking care to make the bed large enough for the season; 5 feet high at back and 4 feet in front, with the material well beaten down, will not be too high.

Place the frame in the bed, and in four days or so level the bed if necessary by adding the requisite material, and place on the centre of each light about a barrowful of soil in the form of a flattened cone, the top about 1 foot, not more, from the glass. When the heat does not exceed 85° to 90° in the hillocks place a plant in the centre of each, pressing the soil firmly around the ball, taking care not to injure the stem, and a little dry soot drawn in a ring round each plant will protect it from slugs. The day temperature should be 70°, with 10° to 15° more from sun heat, losing no opportunity of admitting a little air to allow of the escape of rank steam or accumulated moisture, but in no case must air be admitted to lower the temperature below 70°. The night temperature should be 60° to 65°, 5° more in mild weather. The plants should be stopped at the second rough leaf for frames and pits. Instead of planting out too soon in houses shift into larger pots as required, securing the stems to small stakes and rubbing off the laterals to the height of the bottom wire of the trellis.

Pines.—The plants recently started into fruit will, if in good condition at the roots, produce strong suckers. When these are large enough to handle all, except one to each plant, should have the centres taken out in order to check the growths. To supplement the autumn-potted plants select others which have been wintered in 7 or 8-inch pots, choosing the most vigorous plants. The remainder of such plants should be reserved until the general spring potting, when they should be shaken out and treated like suckers. Procure fibrous loam with the herbage reduced, or if used fresh it should be placed where it can be heated so as to kill the grass and any larvæ or insects it may contain, and when torn up in suitable compost add a quart of soot, two of wood ashes, and a pint of superphosphate to each barrowload. If the loam has been laid up it must be had under cover some little time before using to become dried. Drain the pots moderately but efficiently, dusting with wood ashes or soot so as to exclude worms; and keep the plants well down in the pots, ram the soil firmly round the roots, leaving sufficient space to admit of copious supplies of water being given when necessary. For Queens 10-inch pots, and 11 or 12 inches are suitable for those of stronger growth. A temperature of 60° to 65° will be sufficient for these plants, also for those potted last autumn, and 80° to 85° at the roots.

Plants in beds about to be started into fruit must not have the heat at the base of the pots over 90° or 95°, or their roots will be injured. If sufficient fruit be started to meet the requirements, late successional plants may be advanced slowly, these with autumn potted suckers requiring careful watering, especially where the heat is supplied by fermenting materials.

Strawberries in Pots.—The earliest plants have thrown up trusses strongly, especially La Grosse Sucrée, Royal Sovereign, and Vicomtesse Hericart de Thury. The fruit having set freely and being well thinned are advanced in swelling. This should be accelerated in a temperature of 60° to 65° or 70° by artificial means, and 10° to 15° advance from sun heat, maintaining a genial condition of the atmosphere by damping and light syringing on fine afternoons. When the fruit commences ripening a drier atmosphere will improve the flavour and colour of the fruit. Plants advancing to the flowering stage must not be hurried, 50° to 55° being ample by artificial means, and 60° to 65° with sun heat and free ventilation, but avoid cold draughts, especially directly upon the plants, as these cause the young fruit to become brown and cease swelling. More plants should be started without delay, such varieties as Noble, President, Sir Joseph Paxton, Auguste Nicaise, James Veitch, Lucas, and Sir Charles Napier, affording grand fruit, introducing along with them some of the early varieties, such as La Grosse Sucrée, Royal Sovereign, and Vicomtesse Hericart de Thury, so as to secure the succession unbroken, and have high-class produce. Keep a sharp look out for aphides in the early stages, fumigating upon their first appearance, for they insinuate themselves into the opening buds, and give much trouble unless promptly destroyed; indeed good fruit cannot be had if the pests get a strong hold on the plants, and the time to destroy them is before flowering.

THE KITCHEN GARDEN.

Carrots and Radishes.—These can be forced together in the same frame or pit. Prepare a gentle hotbed of leaves and stable manure, or the latter alone. If frames are deep, after setting these on the beds half fill with some of the shortest of the heating material, raising to 6 inches from the glass with fine sandy soil. When all danger of over-heating is past open shallow drills 8 inches apart for the Carrot seed, and midway between these sow the Radishes. Sow the seed thinly, and cover with fine soil. The frame should be kept darkened and close till the Radish seed has germinated, after which admit all the light possible, and air whenever the weather is favourable. When the sun gains in power considerably ventilate freely, and keep the soil uniformly moist.

Cauliflowers.—Plants not protected have been much injured by the late frosts, but those roughly protected are apparently healthy. They do not transplant readily from either seed beds or where pricked out, moving best out of 3-inch pots. Now is a good time to place a portion or all of the stock in these pots, using rich loamy compost and potting firmly. Keep in gentle heat till the plants have rooted into the

fresh soil, after which they should be kept in cool frames or on greenhouse shelves till they can be planted out in hand-lights at the foot of south walls, or in other positions where they can be roughly protected when necessary. More seed should now be sown thinly in pans or boxes. Before the plants become drawn transfer to shelves near the glass in gentle heat. After they have formed rough leaves, either place singly in 3-inch pots or in pairs in 4-inch pots, sinking the stems to the seed leaves. Keep them in heat till well rooted, then arrange them either on a greenhouse shelf or in cool pits and frames. Duly hardened and planted out before they become root-bound these early raised plants will form a close succession to those raised in the autumn.

Celery.—If early Celery is wanted, seed of a good white variety ought now to be sown on the surface of fine light soil in pans, watering this before rather than after sowing, and covering very lightly with fine soil. Place in brisk moist heat, cover with a square of glass, and shade heavily till the seeds germinate. Raise the seedlings well up to the glass, and prick out in boxes or pans of rich soil soon after the rough leaf has formed on them.

Leeks.—If these are wanted extra fine early in the season seed ought to be sown at once thinly in a pan or box. It will germinate most quickly if subjected to a brisk, moist, bottom heat, subsequent treatment also to be the same as recommended for early Celery. For ordinary purposes the plants may be raised in the open, sowing the seed with the Onions early in March.

Lettuces.—Early frame-grown Lettuces are always appreciated. Sow the seed thinly in pans, and place in heat to germinate. Before the young plants become drawn move the pans to a swing shelf in warm greenhouse. If raised thinly there will be no need to prick them out, as small plants may safely be transferred direct to beds of rich soil. Hard forcing must not be attempted. Form solid hotbeds in shallow pits or in a sheltered position for frames, raising the 6 inches of rich loamy soil in these well up to the glass. Keep well supplied with moisture, and avoid undue coddling.

Onions.—If fine roots are needed for the August shows these are best obtained by raising the plants early in heat, duly planting out on firm rich ground. Onions treated in this way are also less liable to be destroyed by the Onion maggot, and the crops mature early, keeping well accordingly. Sow seed at once thinly in boxes of good soil to obviate the necessity for pricking out into other boxes later on. If possible place the boxes on a hotbed of some kind, and failing this in brisk moist heat, till the seed has germinated, raising them up to nearer the glass to prevent the seedlings from becoming spindly.

Tomatoes.—Strong young late summer raised plants in 10-inch or larger pots, or else planted out in ridges of soil, will soon be giving ripe fruit, and the flowers will also open and set more satisfactorily than during the duller days of early winter. If there is ample room reserve some of the side shoots which are constantly pushing forth, as these will give early clusters of fruit. If there are no fruit on the lower parts of the stems, remove the older leaves and lay in a young growth from near the ground. Top-dress and otherwise feed old plants, and these will also produce abundance of fruitful growths, the crops ripening well in advance of any obtained from plants raised early in the winter.

Raising Tomato Plants.—Seed ought always to be sown thinly in pans. It will germinate quickly in brisk heat, and the seedlings should be raised well up to the light and sunshine before they become drawn. When in rough leaf lift them out of the pans with a label, and sink them singly and up to their seed leaves in 2½-inch pots. Return to light staging or beds in a forcing house, and before they become root-bound either shift into 5-inch or slightly larger pots, or plant direct where they are to fruit. Extra strong seedlings may be placed in pairs in 6-inch pots, this obviating the necessity for a shift, but they must have the benefit of a temperature from 60° to 70°, and be carefully watered for a time.

PLANT HOUSES.

Chrysanthemums.—As these become rooted harden them if they have been under hand-lights, and place them on a shelf close to the glass, to prevent their being drawn up weakly. If in thumb pots be careful the soil does not become dry, and when the plants are well rooted transfer them into 2½-inch pots. They will grow sturdily if placed where the temperature does not fall below 40°. Cuttings must still be inserted; where the plants are required to produce large flowers place them singly in small pots. Those for ordinary decoration may be inserted thickly in boxes, and covered with a square of glass. Early and late flowering varieties are very useful where cut flowers are largely in demand. Good supplies of the former should be rooted; there is no hurry about the latter, and we rarely root the whole stock of these before March. As the old stools are thrown out wash the pots and store them away ready for the time when they will be wanted. A note should be made of any extra pots that may be needed, so that there will be no delay at potting time. Sort the stakes, and provide fresh ones in the place of those too short. If these are to hand they can be painted in readiness, while work outside is at a standstill.

Mignonette.—Fill 5-inch pots with a compost of three parts fibry loam, the other part being composed of leaf mould and sand with one-seventh of decayed manure. Make the surface even, and sow seed of a good strain evenly, cover the seed with fine soil, and water with a fine-rose can. If the pots are placed in a vinery just started the seed will soon germinate; gradually harden and place them on a shelf close to the glass, where the temperature will not fall below 45°. Thin out, if necessary, those raised from seed sown early in September. Keep these as cool as possible. If any of the plants are growing weakly pinch out the

points. Be careful that they do not become dry at their roots. Standards and pyramids, where the flowers are not needed, may be removed, and the growths tied down; give these a little artificial manure to the surface of the soil, water carefully, and keep the plants standing on a moisture-holding base.

French and Fancy Pelargoniums.—Pinch out the points of late-rooted cuttings and place them in 5-inch pots. Use for a compost fibry loam, sand, and one-seventh of manure. Place the plants on a shelf, keep them cool, and water carefully. Pinch all shoots on plants that need it that are not required for early flowering. Some of these will need repotting, and in doing this press the soil firmly to prevent soft leafy growth. All that is needed at present is to keep the plants slowly moving. Although they need careful watering do not keep them so dry as to injure their soft, active roots. Watch for aphides, and fumigate at once upon their first appearance.

Zonal Pelargoniums.—Bushy little plants in 3-inch pots may be placed into 5-inch size, using the compost advised above. Merely keep them growing, but do not pinch their shoots. As soon as the days lengthen they will bear gentle heat and come early into flower. Select from amongst those which have been flowering dwarf free-blooming varieties, and if these are given a little artificial manure and kept slowly moving they will not be long before they commence flowering again. Those that need cutting back should be kept rather dry. Place all that have done flowering and need pruning in a cool house, and give them little or no water; if cuttings are needed from them early they will root all the better and be much less subject to damp if moderately firm than if they are soft.

Calceolarias.—Give the earliest plants their final shift. Use a moderately light but rich compost, keep the plants cool and on a moisture-holding base. Repot successional plants as they need more root room. Do not allow them to become dry nor keep them in a dry atmosphere, or they will soon be attacked by aphides.

Cinerarias.—For those in small pots that are required for flowering in May a small shift only is necessary. Keep the plants cool, only be careful that the foliage does not suffer from damp. They will be safe in the greenhouse where fire heat is used to keep out frost and occasionally to expel damp. Give those which are throwing up their flower spikes soot water in a clear state.

Primulas.—Place in 3 or 4-inch pots those required for late spring flowering. Keep the plants cool, but in a position where they will be free from damp. If close or confined they suffer from damp, the foliage draws up weakly, and the plants flower imperfectly. Sturdy growth must be aimed at, and the result is abundance of large flowers.

Carnations.—Fumigate at once if aphides attack the points of these plants. Miss Jolliffe will continue to unfold its flowers if the temperature in which they are grown does not fall below 45° at night. Autumn rooted plants in small pots may be placed in the 5-inch size. Well-rooted layers of *Souvenir de la Malmaison* and other varieties may also be placed into 5 and 6-inch pots. If these are kept where frost can be excluded they will continue to root and make slow growth. Watch for any brown fungoid growth on these plants. Move those infested, and scrape out with the point of a knife every trace of the disease, and then dust the affected part with sulphur. If a solitary plant only is attacked it will be wise to burn it at once. A sharp look out should be kept for this disease; if allowed to spread it will quickly destroy the plants.

Lilium Harrisii.—Watch for aphides, which are liable to attack the points of the plants, and fumigate at once if they are observed. It is surprising how quickly they cripple the foliage. If the plants are not needed in flower quickly keep them close to the glass, where the temperature is about 40°. If given intermediate treatment they soon run up to a height of 4 feet or more. This cannot well be avoided if they are wanted in flower early. As soon as *L. eximium* has grown through the plunging material place the plants on a shelf close to the glass in a perfectly cool house. African-grown bulbs of *L. Harrisii* appear to be of larger size than those grown in America, and as they are issued about Whitsuntide they will prove invaluable for flowering during the closing weeks of the year.

THE BEE-KEEPER.

SEASONABLE NOTES.

PURE HONEY.

No apology is needed for referring to this subject, as it is of great importance to bee-keepers in this country. It is a fact well known to many people in the trade that there is a vast amount of foreign produce sold under the name of honey which has very little of the genuine article in its composition. That I am not alone in this opinion I may be allowed to make a few observations affecting this question on what has been done in Belgium.

According to a correspondent the Belgian authorities have set an example which might with advantage be followed in this country. The large imports of honey in a more or less adulterated state greatly interfere with the sale of the genuine home product, and therefore hinder the development of bee-keeping for commercial purposes. The Government of Belgium has promulgated

a decree as to what is to be considered honey, and regulating the sale of this commodity. Under this decree, says a contemporary, the denomination "honey" is to be applied solely to the substance produced by bees from the nectar of flowers or other juices gathered from plants. Honey produced by bees fed with other substances (excepting such as are supplied to them as provision for winter) must bear a denomination indicating the material given to the bees, as, for instance, "honey from sugar," "honey from glucose," or "mixed honey."

Honey substitutes and mixtures of honey with such substitutes or with other foreign substances must be denoted "artificial honey," or honey mixed with such and such substances, or some term not involving the word honey must be used.

The sale of honey containing more than 1 per cent. of pollen, wax, or other substances insoluble in water, or more than 0.5 per cent. of mineral matter, and all spoilt honey is prohibited.

Vessels containing honey or mixtures of honey must be labelled in such manner as to specify the exact nature of the contents as defined by the present decree.

If something like the above could be carried out in this country, what a boon it would be to bee-keepers throughout the length and breadth of the British Isles!

Honey placed on the market by bee-keepers who have a reputation to lose may always be depended on. As a proof that it is the foreigner who glutts our market with the spurious concoction, I may state that a few years ago a well-known analyst examined upwards of twenty samples of honey obtained from various sources, with the result that all the samples of English honey were found to be pure, but the foreign, without exception, was adulterated. Some of the samples experimented on had no honey whatever in its composition. I do not wish to give the impression that I consider all foreign honey to be adulterated, as one sometimes meets with some really first-class samples; but the above shows that it is largely adulterated, as the samples under notice were obtained from all possible sources.

As showing the amount of honey that is annually imported into this country I may say that during the past year, according to a return furnished by the Statistical Office, H.M. Customs, honey to the value of £29,296 was imported. Although great strides have been made in apiculture during the past quarter of a century, and hundredweights of honey are now gathered where none was obtained before, still there is not sufficient for our requirements, as the above figures show. Let us endeavour, then, to place the produce from our apiaries before the public in such a manner as will claim attention. All sections of comb honey should be well sealed over, and if glazed it will prevent them being damaged when handled.

Run honey should be put in 1 lb. glass jars and neatly labelled with the producer's name and address, which will be a guarantee of its purity. Honey of inferior quality should not be offered for sale, but given back to the bees for storing purposes. By this means bee-keepers may create a ready market for their produce at remunerative prices, which will benefit themselves as well as the consumer, who will thus obtain the genuine article.

If bee-keepers as a body will work on these lines they may before many years hope to have a share of the large amount of capital that is now paid to the foreigner for honey and its substitutes; but it is only by paying close attention to detail that we can hope to succeed.

STORING HONEY.

Some bee-keepers have a difficulty in keeping their honey in good condition. With run honey it is not so difficult, but with honey in the comb the case is different, and what is more discouraging to the beginner on examining his sections a few weeks or months after storing them for future use to find them all leaking, although they were well sealed over. This is usually caused by storing in a low damp atmosphere. They are then useless except for home consumption, and even then the flavour is not first-class, reminding one of fermented honey. If allowed to remain in this state for several months much of the product will granulate, and is then of but little use.

Honey to be kept in prime condition should be placed in a temperature of about 50°; a few degrees more or less will be of no consequence if the atmosphere is dry.

A room in which there is a fire daily, or occasionally, will keep comb honey in admirable condition. I have occasionally kept sections of honey for two years, and after being kept for that length of time it was difficult to distinguish them from those just removed from the hive.

All sections should be kept free from dust or they will soon become disfigured. A high temperature will usually prevent run honey from granulating; but I do not see what advantage there is to be derived from doing so, as honey may be made liquid at any time by placing the vessel containing it in hot water for a few minutes.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

W. Atlee, Burpee & Co., Philadelphia.—*Seeds*.
 Kerr Brothers, Dumfries.—*Seeds and Roots*.
 The Surrey Seed Company, Red Hill.—*Seeds*.
 E. Webb & Sons, Wordsley, Stourport.—*Farm Seeds*.



* All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Errata.—In the reply to "P. H.," second column, page 84, tenth and eleventh line of paragraph, for "3½ lbs. kainit per square yard," please read 3½ lbs. kainit per square rod.

Boards for Exhibiting Grapes (Z.).—If you refer to our issue of July 23rd, 1896, you will find the information you require. The copy may be procured from our publisher for 3½d., post free.

Hard Water for Tomatoes (T. P. R.).—Hard water is not injurious to Tomatoes unless the lime exist in excessive amount, but it is well to have the water exposed to the air for some time before use so that it may become warmed to at least atmospheric heat at the time of using. If the water is too limey soften it by the use of anti-calcaire, 1 lb. to 250 gallons of water, mixing well and allowing it to stand twenty-four hours, then employ the clear water only; or dissolve 1 oz. of washing soda in a gallon of hot water, which add to 9 gallons of the hard water, and so on in proportion. Allow it to stand twenty-four hours, then use. This seems to suit Tomatoes.

Medals of Honour (H. C.).—We have received the paper cutting that "amused" you. The paragraph was no doubt written to amuse, and thus served its purpose. We have no desire to find fault with it. The whole question is one of individual taste, as bearing on the vanities of the world. Some persons like to be awarded cups and medals, others do not equally value them. Some persons like to be addressed as "Esquire" who have no legal right to the title, others of the same status being well satisfied with the plain "Mr." Some who regard medals as mere bangles are willing to pay for the luxury of attaching distinctive letters to their names, and for cockades on their coachman's hats, while others care for none of these things. It is a question of idiosyncrasy. No doubt there are plenty of vain people about, but small, we think, fear of England becoming a nation of popinjays.

Paradise Stocks for Transportation to the Western Coast of America (Pacific).—So far as we know seeds or "pips" of Paradise stocks are not procurable; they could not be relied upon if they were, for the several forms of Paradise stocks are selections of species or even varieties, hence must be perpetuated by layers or other similar methods. The French Paradise is too tender for this country, therefore the broader leaved English and the Nonesuch Paradise varieties are those commonly used as dwarfing stocks. Stocks raised from pips, transplanted the first autumn, and allowed to grow a year, are ready for working in the following season. Stocks are readily transported to America, and can be had of most large nurserymen at a low price per 100 or 1000.

Cypripedium Leaves Rusted (F. S.)—The leaves are not infested by any insects or fungi, at least we failed to discover any, and though the appearance is that of attack from eelworms our efforts to find them were futile. Indeed, beyond the cells being yellow and having every characteristic of Plasmodiophora infection, there was nothing discoverable in the tissue. This form of "rusting" is said to arise from a chill, and not to be connected in any way with micro-organisms or anything of a parasitic nature. The cells are ruptured by some agent, possibly that of water long remaining on the leaves, or from its containing some noxious substance, such as that of iron. There was a slight clamminess on some of the spots, and in these decayed parts several micro-organisms of a septic nature. We can only suggest the careful use of soft and properly warmed water, not pouring it so as to lodge on the leaves more than can be helped. In a similar case we found sponging the leaves carefully with methylated spirit diluted with an equal amount of water of great benefit, but we rather incline to the view of the water being at fault.

Old Plane Tree Stem Covered with Ivy (G. B. T.).—The Ivy is a parasite of support, being indebted to the shrub or tree for the power to carry its stems and leaves upwards, also in due course its flowers, where they may spread in sight of the sun, its own frail stem being unequal to the burden; but it takes nothing, though it has suckers, from its neighbours or supporting tree. Its effect, however, is to overgrow and interfere with the vigour of the shrub or tree it grows upon, ultimately smothering it, which in the case of an old tree is a great ornament and not materially prejudicial, as under any circumstances the tree would gradually decline, and the Ivy would enhance its antique appearance, it increasing in vigour and beauty as the Plane tree became older. Even after the Plane died the Ivy would be a very desirable object, therefore we should not interfere with it under the circumstances. It is different in the case of a young or thriving tree, then the Ivy should be cut away, so as not to interfere with the growth, thus securing fuller development, as nothing can well progress with a heavy burden besides its own to bear, being more or less deprived of air, and to some extent moisture by the overgrowing plant.

Grafting a Camellia (Amateur).—As a rule, grafting plants is an operation best left to those who have been rendered expert in it by long practice, but the engraving (fig. 26) will show you how to do it. The scion is cut half its length wedge-shaped, leaving on each side an equal breadth of bark diminishing gradually to a point. The stock (B) is slit at b by a single cut of the knife, the blade penetrating the alburnum. The scion (A) is introduced by its base a, then tied as represented at c. If this is



FIG. 26.—GRAFTING A CAMELLIA.

done in the open air it must be covered with wax or clay, because the cut on each side of the slit leaves an opening. It is not necessary to cut off the top of the plant when the operation is completed. The work is done at almost any time in the spring.

Diseased Onions (S. H.).—The Onion is infested by the Onion mould or fungus, *Botrytis galanthina*, Sacc., this being found on Snowdrops and other bulbous plants, such as Lilliums, and is the conidial condition of *Sclerotinia bulborum*, Rehm. This springs from a sclerotium formed in the rotten bulb or on it, and even in the ground, and bears the ascophores or spores in asci, and resembles a minute disc-like Toadstool. There are myriads of the *Botrytis* spores on the specimen. It and all like it ought to be burned to prevent further contagion. Infested land should be well dressed with lime, and Onions not grown therein for some time. But the fungus is also a saprophyte, very common, yet a very malignant parasite at times, sometimes ruining the autumn Onions wholesale when fit for pulling, or should be, and not unfrequently attacking the spring-sown ones, and sweeping them off when the maggot also "bites"—that is, in early summer, generally in late May or early in June, and onwards. Dusting with a fungicide in powder is the best preventive, but it is necessary to begin in time. We have also found permanganate of potash useful, and it is not likely to lead to any danger to human life. The permanganate should be diluted to a deep rose colour (2 fluid ozs. to a gallon of water), and applied by means of a spraying apparatus when the Onions are a few inches high, say when 6 inches, repeating occasionally. Probably

the attacks of the fungus are a consequence of neglect in the proper rotation, the land being positively a festering mass of organic matter of the kind affording the essential food. Anyway, change of crops, if only Parsley, is a great hindrance to it. Sometimes it acts wholly as a saprophyte for years, then for some unknown reason wakes up, and shows what it can do as a parasite, assailing the bulbs in summer when ready to pull, cutting off the leaves, entering by the crown, and so feasting on them in store, going rotten, as the saying has it, "without reason."

Dahlias (Amateur).—Twenty excellent Cactus Dahlias are as follows:—Charles Woodbridge, bright crimson; Fusilier, salmon pink; Mrs. Fell, white or cream; J. E. Frewer, vermilion; Royal George, carmine pink; Lady Penzance, yellow; Valkyrie, cardinal, shaded rose; Miss A. Jones, crimson scarlet; Miss Nightingale, yellow ground, edged with scarlet; Mrs. Wilson Noble, rosy pink; Mrs. Gordon Sloane, terracotta pink; Harmony, bronze; Matchless, maroon; Mrs. Barnes, primrose; Bertha Mawley, cochineal; Cycle, magenta; Harry Stredwick, fiery crimson; Cinderella, plum; Starfish, vermilion; Mrs. Kingley Foster, golden amber. The last five varieties are new, and will be distributed this year at probably 7s. 6d. each. Should you not wish to give so much the following varieties would be good substitutes:—Earl of Pembroke, Gloriosa, Major Haskins, Delicata, and Mrs. Leopold Seymour. The National Dahlia Society's schedule gives a list of true Cactus varieties, but by a resolution passed at the last meeting the term decorative is dropped, so that any variety not named in their list is debarred from competing at their exhibition. For list apply to Mr. J. F. Hudson, Gunnersbury House, Acton, who is Secretary of the Society now. Subscribers of 5s. are members of the N.D.S.

Names of Fruits.—*Notice.*—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. They should be sent on the first indication of change towards ripening. Dessert Pears cannot be named in a hard green state. (P. Hargreaves)—1, Bess Pool; 2, Blenheim Orange; 3, Bramley's Seedling; 4, Tower of Glamis; 5, Red Winter Calville. (C. A. S.).—1, Golden Winter Pearmain; 2, American Mother; 3, Queen Caroline; 4, Cox's Orange Pippin; 5, Winter Hawthornden; 6, Alfriston. (G. S.).—1, Nec Plus Meuris; 2, Josephine de Malines; 3, Chaumontel. (J. O.).—1, Lane's Prince Albert; 2, Wellington. (W.).—Unknown.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (F. J. B.).—1, *Euonymus latifolius variegatus*; 2, *Abutilon vexillarium*; 3, *Cyperus natalensis*; 4, 5, and 6 dead. (W. White, Grantham).—1, *Selaginella cæsia*; 2, *Panax Victorice*; 3, *Eucomis pallidiflora*; 4, *Trichomanes radicans*; 5, *T. reniforme*; 6, *Euonymus radicans variegata*. (A. C.).—1, *Cypripedium villosum*; 2, *Odontoglossum Rossi majus*; 3, *Cymbidium tigrinum*. (Kate).—1, *Eranthemum pulchellum*; 2, *Libonia floribunda*; 3, *Cyperus alternifolius*; 4, *Lælia anceps*, poor form; 5, *Cypripedium Harrisianum*.

COVENT GARDEN MARKET.—FEBRUARY 3RD.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	1	3 to 2	Lemons, case	11	0 to 14
Filberts and Obs., per 100 lbs.	45	0 50	Plums, $\frac{1}{2}$ sieve	0	0 0
Grapes, per lb.	1	0 1 9	St. Michael Pines, each ..	3	0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100	0	0 to 0	Mustard and Cress, punnet	0	2 to 0 4
Beans, $\frac{1}{2}$ sieve	0	0 0	Onions, bushel	3	6 4 0
Beet, Red, dozen	1	0 0	Parsley, dozen bunches ..	2	0 3 0
Carrots, bunch	0	3 0 4	Parsnips, dozen	1	0 0 6
Cauliflowers, dozen	2	0 3 0	Potatoes, per cwt.	2	0 4 9
Celery, bundle	1	0 0	Salsify, bundle	1	0 1 0
Coleworts, dozen bunches	2	0 4 0	Seakale, per basket	1	6 1 0
Coumbers	0	4 0 8	Scorzoneria, bundle	1	6 0 0
Endive, dozen	1	3 1 6	Shallots, per lb.	0	3 0 0
Herbs, bunch	0	3 0 0	Spinach, pad	0	0 4 0
Leeks, bunch	0	2 0 0	Sprouts, half sieve	1	6 1 9
Lettuce, dozen	1	3 0 0	Tomatoes, per lb.	0	4 0 0
Mushrooms, per lb.	0	6 0 8	Turnips, bunch	0	3 0 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (various) doz.	6	0 to 36	Foliage plants, var. each	1	0 to 5
Aspidistra, dozen	18	0 36 0	Genista, per dozen	10	0 15 0
Aspidistra, specimen plant	5	0 10 6	Hyacinths, large, per dozen	6	0 12 0
Azalea, per dozen	24	0 42 0	" (Roman), doz. pots	6	0 8 0
Chrysanthemums, per doz.	6	0 12 0	Lycopodiums, dozen	3	0 6 0
Cyclamen, per dozen	9	0 18 0	Marguerite Daisy, dozen ..	9	0 12 0
Dracæna, various, dozen ..	12	0 30 0	Myrtles, dozen	6	0 9 0
Dracæna viridis, dozen ..	9	0 18 0	Palms, in var., each	1	0 15 0
Erica, per dozen	9	0 12 0	" (specimens)	21	0 63 0
" hyemalis, per dozen	10	0 15 0	Poinsettia, per dozen	9	0 12 0
Euonymus, var., dozen ..	6	0 18 0	Primula sinensis, per dozen	4	0 6 0
Evergreens, in var., dozen	4	0 18 0	Solanums, per dozen	9	0 12 0
Ferns in variety, dozen ..	4	0 18 0	Tulips, dozen pots	6	0 9 0
Ferns (small) per hundred	4	0 6 0	" in boxes, per dozen	0	8 1 6
Ficus elastica, each	1	0 7 0			

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches ..	2	0 to 4	Mignonette, dozen bunches	3	0 to 6
Arum Lilies, 12 blooms ..	3	0 5 0	Mimosa (French) per bunch ..	1	0 1 6
Asparagus Fern, per bunch	2	0 2 6	Narciss, White (French), dozen bunches	1	6 3 0
Azalea, per dozen sprays ..	0	6 1 0	Narciss, Yellow (French), dozen bunches	1	0 2 0
Bouvardias, bunch	0	6 0 9	Orchids, various, per dozen blooms	1	6 12 0
Carnations, 12 blooms ..	1	6 3 0	Pelargoniums, 12 bunches	6	0 9 0
Christmas Roses, 12 blooms	1	0 1 6	Pyrethrum, dozen bunches	1	6 3 0
Chrysanthemums, dozen bunches	3	0 9 0	Roses (indoor), dozen ..	1	0 2 0
Chrysanthemums, 12 blooms	2	0 6 0	" Tea, white, dozen ..	1	0 2 6
Daffodils, dozen blooms ..	0	9 1 6	" Yellow, dozen (Niels)	6	0 9 0
Eucharis, dozen	3	6 4 0	" Red, dozen blooms ..	2	0 3 0
Gardenias, dozen	4	0 6 0	" Safrano (English), dozen	1	0 2 0
Geranium, scarlet, doz. bunches	6	0 9 0	" Pink, per dozen	3	0 6 0
Hyacinths (Roman), 12 sprays, and per bunch ..	0	6 1 0	Smilax, per bunch	3	6 6 0
Lilac, White (French), per bunch	8	6 5 0	Snowdrops, dozen bunches	1	0 2 0
Lilium longiflorum, 12 blooms	6	0 8 0	Tuberose, 12 blooms	0	6 1 0
Lily of the Valley, 12 sprays, per bunch	0	6 1 0	Tulips, dozen blooms	0	6 1 6
Marguerites, 12 bunches ..	2	0 3 0	Violet Parme, per bunch ..	2	0 4 0
Maidenhair Fern, per dozen bunches	4	0 8 0	" per doz. bunches ..	1	6 2 0
			" (French), per dozen bunches	1	0 2 0



POULTRY AND EGGS IN 1896.

THE year 1896 has closed, and we are now in a position to see where we stand with regard to food imports. Do we ever quite grasp the fact as to how much money goes out of this country to pay for goods which might to a much greater extent be produced at home?

There are, of course, many things that must come from abroad, articles that cannot, from climatic reasons, be grown here; and even of those things that we can produce, our population is such a teeming one that by no known means can we produce enough. But again, we cannot help thinking we take many matters too easily. We don't seize our opportunities; we don't believe (or if we believe we don't practise) that proverb about the nimble sixpence. The industry that we have now in mind is the poultry industry. The statistics of the poultry and eggs imported during last year are now before us; they are very astonishing, and to the unprejudiced mind furnish much food for reflection.

A few figures will elucidate matters.

	1894.	1895.	1896
Eggs	£3,786,329	£4,003,446	£4,184,567
Poultry and Game	480,884	605,160	605,458

How do these figures strike the reader? Nearly £5,000,000 for poultry and poultry produce in one year! Are we more luxurious than other nations, and demand, as common articles of diet, what they treat as delicacies, and are ready to turn into money; or are they really superior to us at the work of production, and so send us only their surplus? We rather fancy both causes are in operation. When trade is good no people live so well as our middle and lower classes, and our tendency has ever been prodigality in cooking—the best of everything, and plenty of it.

We are not, as a whole, a saving nation, and we most certainly

are fond of good living, though behindhand in the art of making that good living at little cost. To begin with eggs. Where do they come from, and what is their respective value?

Russia	15	per cent.	...	...	5s. 2½ d. per 100.
Denmark	12½	"	...	...	6s. 8d. "
Germany	19	"	...	...	5s. 4d. "
Belgium	16½	"	...	...	6s. 2½ d. "
France	30½	"	...	...	7s. 7½ d. "
Canada	4½	"	...	...	5s. 1½ d. "
Other countries ...	2½	"	...	...	6s. 4½ d. "

Canadian eggs come 4000 miles, and those Russian eggs from the Volga district have to travel 1000 miles before being shipped from one of the Baltic ports. Great as is our import of French eggs, yet it is over £250,000 less than it was a few years ago, although they are gradually recovering their lost ground. Russian poultry and game imports are increasing enormously. In 1894 the value was £43,289, in 1895 £85,697, and in 1896 it rose to £143,584. Belgium and other countries are increasing their supplies, but the French supplies were much less, to the extent of £59,000 as against 1895, and £20,000 as against 1894.

At Newhaven and Southampton were landed for our Christmas market 2458 and 238 tons respectively of poultry from Normandy and Brittany. These weights would represent about 600,000 birds. As to our own statistics we have no reliable information. There has been a movement in the right direction, but poultry keeping in England is still in its infancy. This last has not been a good year for the poultry man, the excessive drought in the earlier months caused a great lack of natural food, and the heat was most trying to young poultry, especially to ducks. In our own case the field where we usually put our freshly hatched chickens was as bare and brown as the high road, and we had materially to increase the quantity of hand food to make up for deficiencies.

Birds did not grow well, and then came a long, wet, cold autumn, and the egg record has proved a bad one. There is one little fact to which attention cannot be drawn too often—the existence of so many aged hens. Hens over three years old are useless save for the broth pot, but hen wives seem very reluctant to part with these old birds, and thus give more room to profitable stock. Our experience is that after moulting hens can readily be sold for 3s. per couple, and even if less has to be taken they must at all risks be got rid of.

We also see on many establishments what we can only designate as mongrel stock. If the owner would make up his or her mind as to whether eggs or fat fowls were to be grown and arrange accordingly much better results would be obtained.

We do not care to grow more fowls than will supply us with young pullets and a few cockerels for table purposes, as we find the egg trade the best paying, sending them off to a large manufacturing centre.

Of course the best-laid schemes often go amiss, and we find to our chagrin that more cockerels are hatched than pullets. A fattening establishment has been started in our neighbourhood, and if the fowls are bred on certain lines—i.e., Indian Game-Dorking, the manager is always a ready buyer. We see these establishments are on the increase, and must be of material benefit to the ordinary farmer. He has no appliances for perfecting the finished article, and it will pay him better to sell off his stock when young.

We have seen much good result from a course of intelligent poultry lectures; but, alas! some of the lecturers have missed their vocation, and do more harm than good. As we said before, we are still, as a nation, very ignorant on this subject of poultry, but we are showing ourselves willing to learn, and that is a step in the right direction.

We are glad to see the railways are doing their best to bring the producer and consumer more into touch by lowering the rates; but strange though it may appear, there are still vast districts that the railways do not touch, and in these districts, owing to the difficulty of transport (save by carriers' carts once a week), poultry produce is very cheap.

In two such districts, personally known to us, there is more than a talk of light railways; if they become a reality they will do much to developing industries hitherto dormant.

We think the labourer and artisan (that is, in the rural districts) are not quite awake to the possibilities that lie at their door. If each did his utmost in poultry raising a nice sum might be added to the weekly income, and the foreigner get less of our hard earned cash.

WORK ON THE HOME FARM.

Mildness has suddenly changed to snowstorm and blizzard, and we are beginning to speculate as to damage to roots still in the ground, and are even fearful as to the safety of those in the pits. The extreme wet has saturated the Potato pies to such an extent that it is more than likely that the severe frost, accompanied as it has been by a driving wind, has penetrated to the tubers, and we expect to hear of a good deal of frost damage. Ploughing is now quite impossible, and if there is no carting of manure or refuse left on hand the horses must perforce have a rest.

The breeding flock now requires special and urgent attention. Frozen Turnips, or grass covered with several inches of snow, and, therefore, not easily accessible, are not enough in themselves for sheep with more than one life to provide for. Ewes, we think, require dry and nutritious food in any weather during pregnancy, but especially so in a period of frost and snow. Malt culms are an excellent food for lambing ewes, and they leave a considerable residual value in the manure. Dried grains are also very valuable; both these foods contain very little water, and are, therefore, particularly useful when natural foods are so watery and cold. If the flock owner is fortunate enough to possess a good supply of hay or seeds he will need no artificials, only a good hayrack or two to economise his fodder. Cattle are now all in the yards. They are doing well, but bedding is scarce and must be economised, so we cannot make them quite so comfortable as we should like. An increased allowance of cake has been found necessary; it will be discontinued when milder weather comes.

This is a good opportunity to make up arrears in the way of scotching or plashing hedges, and making up gaps. The fields of young seeds require special attention as regards gaps. It is a nuisance to have these things to attend to when the day for stocking arrives. A rail and a few long pales make the best stopgap, and they do not interfere with the after-growth of the hedge. Pales should be at least 4 feet long, better still 4 feet 6 inches. They should be driven well into the ground, and the rail securely nailed to them 9 inches from the top. Ordinary forged nails are the best, as they clench well, which wire nails do not.

OUR LETTER BOX.

Poor Soil and Best Means of Cropping (Faithful).—1, If there is a good plant of grass, why waste seed in renovating? Top-dressings, as advised in our previous reply, would pay better, and be more certain, as the young seeds might all perish amongst the grass. 2, The sooner kainit is applied the better. Sow it broadcast at once. The rain when it comes will wash it in. As regards planting fruit, your soil seems more likely to grow Plums than Apples or bush fruit, though possibly free-growing Apples would answer, and we know of excellent crops of Strawberries being grown in very sandy soil. But observe how fruit trees fare on similar land in the neighbourhood; also, the condition of hedges and forest trees will be a guide as to the prospects of success in fruit growing. You must have absolute security of tenure before planting fruit. Greens might do planted between the rows of second early Potatoes, but the later kinds would smother them. The best artificials for Lucerne are superphosphate of lime and kainit, 3 cwt. of each.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1897. January.		Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 24		29.939	28.1	27.0	N.	35.0	35.0	23.6	63.1	16.6	0.010
Monday .. 25		29.589	34.9	33.1	W.	34.9	41.0	28.2	69.0	24.3	0.020
Tuesday .. 26		29.745	25.7	28.7	W.	34.8	36.1	26.0	66.7	21.5	—
Wednesday 27		29.683	27.3	27.2	W.	34.2	40.0	23.3	63.1	19.6	—
Thursday .. 28		30.123	32.7	32.2	W.	34.1	38.4	27.1	59.1	22.8	—
Friday .. 29		29.980	33.0	32.8	N.	34.1	38.9	29.0	65.1	23.0	0.091
Saturday .. 30		29.309	37.0	36.8	E.	34.0	37.9	32.9	33.9	30.1	0.048
		29.796	31.7	31.1		34.4	38.2	27.2	60.7	22.6	0.169

REMARKS.

24th.—Bright and sunny throughout.
 25th.—Fine early and at 9 A.M.; snow at intervals; dark and overcast night.
 26th.—Fair early; sun at 8 A.M., and bright and sunny throughout; fine bright night.
 27th.—Bright and sunny throughout; dull and overcast about 5 P.M.; fine night.
 28th.—Fair early; faint sun in morning; overcast and dull in afternoon; fine night.
 29th.—Fair early; overcast at 9 A.M., bright at 11 A.M. and throughout; overcast evening, with rain about 10 P.M.
 30th.—Rain from 5 to 9 A.M., overcast after; rain at 1 P.M., and dull afternoon and night.
 Another cold week, but not so cold as the previous one; bright warm sun on several days.—G. J. SYMONS.

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Journal of Horticulture.

THURSDAY, FEBRUARY 11, 1897.

LEEKES FOR EXHIBITION.

THE Leek plays an important part nowadays in the economy of the kitchen, being used as a separate dish, and not, as formerly, simply for flavouring. The culture of the Leek for exhibition is an important operation, requiring great patience and considerable skill. Nowhere are Leeks so well cultivated as in the north of England and in Scotland. In some of the Northumberland and Durham villages and towns there are Leek clubs, and the annual competitions are keen and exciting. The following method is the one usually followed in the north, where length of blanch is more sought after than thickness, as in the south.

The seeds are sown early in February, in 2-inch pots, filled with a rich compost of good turf and decayed manure, these being plunged in a bottom heat of 70°, or 80° if attainable. Three seeds are placed in a pot, covered over, and in three weeks the plants will be large enough to thin out, which should be done by taking away the smallest, and leaving the largest plant in the pot. In about another three weeks from this time they will be ready to be moved into 3½-inch pots, using the same compost, and being careful it is well warmed before using. Replace the pots in the bottom heat, shading from bright sun.

If they can now be plunged in a bed with a few inches of manure on it they will be greatly benefited by the rising ammonia, while the manure helps to keep them moist. Syringe the plants now regularly night and morning, and the more moisture kept in the house the better for the Leeks. When the pots become fairly filled with roots they should be watered twice a week with sulphate of ammonia, in the proportion of quarter oz. to the gallon of water. If time and space permit, it is best to give them another shift into 5-inch pots, three weeks after the first potting, as this prevents any check. At the end of April remove the plants to a frame where they can be supplied with a little bottom heat, and gradually expose the tops to the air.

In a week if the weather be favourable they will be ready for planting. Dig out the trench 1½ to 2 feet deep, and pass the soil through a three-quarter inch sieve to remove the stones

and lumps of earth. Place this soil on each side for earthing up in due course. This trench should be filled 6 inches deep with good manure, fresh horse droppings if obtainable, but if not, any good manure will do. Cover over with 4 inches of soil, and plant the Leeks carefully in the trench. If fresh manure is used care must be taken not to place the roots too near it. Place some soil up the stem of the plant immediately, so that the wind will not damage the blades.

Some brown paper must be wrapped round the stem, and drawn up as the earth is gradually raised in the trench (paper collars can also be bought ready for the purpose). Before earthing see that the plants have a thorough soaking with water. Many people place drain-pipes a yard apart up the centre of the trench, and apply the water and liquid manure through the season in this way.

The proper length of blanch on a Leek is a matter of opinion, but 14 inches, with stem of medium thickness, is quite sufficient. One occasionally sees them blanched 16 and 18 inches, but they are then too thin to be handsome. In lifting the Leeks for show great care must be taken not to break the foliage. Everyone should be tied just above the blanch with raffia, and the outer leaves must not be stripped off excessively or the smooth surface so desirable will be lost.

Those who cannot raise the plants themselves can purchase fine ones ready for planting in May. The writer grows some thousands every year, and the growing of Leek and Onion plants for competition is in more than one Scotch nursery quite an industry.—S. J.

HARMFUL AND HARMLESS GARDEN MOTHS.

INTRODUCTORY.

To most gardeners moths of varied sizes and colours rank amongst the familiar winged insects, since they are seen both by day and night, also during the greater part of the year. Indeed there is no month when we may not chance upon a moth, either hibernating or performing its usual movements at a season when insect life is generally quiescent. So the moths of the *Hybernia* family, some of which are parents of very destructive caterpillars, have their time of emergence in the winter months, from November to February. Again, though moths are regarded rightly as night fliers by general habit, many fly by daylight, and of course some are dislodged from places where they have settled for the day, by various causes. It may be well to mention this, because people suppose that in the order to which moths belong they are distinguished from their relatives the butterflies by being lovers of darkness. Butterflies, however, do give preference to daylight and sunshine; one seldom moves after 5 P.M. even during summer, but I have seen red admirals sometimes careering about in the evening eager to regale upon fallen fruit.

Often I am asked for some simple distinction between moths and butterflies, for there are moths quite as brightly coloured as any butterflies, and some of them are slender-bodied—in the group of loopers or geometers, for instance. One of the best is to be found in the antennæ or horns, which amongst butterflies are knobbed and enlarged at the tips and always extended in front of the insect if settled, while moths usually lay theirs over the wings or bend them round. Also a butterfly, when resting, closes the wings above the body, which a moth never does. I have found it necessary to shield the majority of butterflies from a suspicion of being parents of insect foes, since in Britain we really have but two species that can be said to be injurious to cultivated plants. The rest are chiefly visitants to gardens, where some of them help forward fertilisation by moving from flower to flower. Newman, it is true, relates that when he was a young entomologist he chased clouded yellow butterflies in market gardens at New Cross, and was himself chased by the workers there, yet those butterflies had not bred on the spot, they came from Lucerne or Clover fields a little distance off. The comma butterfly has been bred upon the Red Currant, but it is a scarce and local.

Some of the Fritillaries, the caterpillars of which feed upon *Violas*, have been put on the list of garden enemies; the zeal of entomologists, however, has now made them too rare for any mischief to be charged upon them. Then there is the black-veined white, which on the continent is really damaging to fruit trees; but in Britain the caterpillars, by no means common, have only occurred on the Hawthorn. It comes to this, that our sole butterfly pests are the large, or Cabbage white, and the small white, both

abundant; the first, as the name implies, chiefly infests various Brassicas, though occasionally the caterpillars abound on other plants, the *Tropæolum* for example. The second, even more numerous, affects all sorts of Crucifers in gardens, not limiting itself to these, since it is frequently found upon *Pelargoniums* and various species; from their size and colour they frequently escape notice during the caterpillar stage.

Returning to our moths, without question the history of common garden species is to many gardeners not clearly outlined, judging from the information that is sought by some of my friends, and the appearance of occasional rarer kinds is also perplexing to them, thinking, perhaps, they are pioneers of a new foe. Others, however, seem disregardful of all moths, not connecting them with the caterpillars from which they have developed, and let them go their way indifferently. Now it is not to be expected that every gardener should be an entomologist, but some amount of book and practical knowledge about insect life is profitable to all. Besides, having such opportunities for observation, a gardener may render material aid to natural science.

One of the correspondents of this Journal discovered a curious fact which had escaped the notice of entomologists, that the wingless females of the winter moth (presumably of others, too, belonging to the same genus, *Hybernia*) are enabled to reach the higher branches of trees for the purpose of oviposition, by the aid of their male companions. People have asked me if moths "grew" after they appeared as moths, and whether they "bit" the petals of flowers to which they resorted. Again, did moths, like some blowflies and the aphid tribe, produce live offspring? To all three queries the answer was a negative. One day a friend stood with me watching a moth that was expanding its wings, having just emerged, and he was surprised to see it eject a large drop of reddish brown fluid. He asked if this would be at all harmful to any vegetable object it fell upon. I said it was not probable that it could be, there being no great quantity. Still, there had been times when from the emergence of a goodish number of moths on the same days, gardens and fields were noticed to be besprinkled with such spots. By our forefathers the true cause was not detected, and it evoked some superstitious idea of the falling of bloody rain.

Shakespeare puts into the mouth of a well-known character of his, words expressing suspicion of lean men, as far more likely to be dangerous than their fat brethren. Now, with regard to garden moths, it is certainly the fat ones that are prominent foes to vegetation, though thin-bodied species may be mischievous, such as the Gooseberry moth and the garden carpet. It is to the group which, according to the old classification, is called the *Noctua* tribe, fat-bodied moths, that the greater number of our enemies belong; they are parents of the mighty army of surface caterpillars. In our islands we can reckon up something like 300 species, but, of course, many do not occur about gardens, and some that do have caterpillars comparatively harmless. A few of these moths fly by day, such as our lively friend the Gamma. The majority repose with the upper wings folded over the lower pair. They have long antennæ, and their colours are generally browns and greys, some having brighter tints; the under wings seldom have any markings.

Sweets of any sort have great attractions to these moths, and it is to entrap them that the entomologist spreads upon trees a cunningly devised compound before twilight, which he visits or watches till the early morning hours, seeking for rarities. He may get them—sometimes; but he is frequently disgusted by a rush of common species, the well-known Cabbage moth, for instance, and its brethren. Might it not be a good plan for a gardener to get rid of some of his enemies by capturing them with sugar before they have deposited their eggs? These, and also the young caterpillars, are not easily discoverable as a rule, and when older they often conceal themselves. Various are the recipes for this moth-snaring syrup, which might be spread on walls or palings as well as trees. Some flavour it with rum or aniseed, but really nothing is more fetching than ordinary Jamaica foots.

It is a sight to see moths hovering over this bait, their eyes frequently gleaming like tiny stars in this phosphorescence or electricity, or neither. Possibly they emit a portion of X rays, as the glowworm's light is found to do. No doubt the large hawk moths, which occur in gardens now and then, look formidable insects, and their caterpillars are hearty feeders; but they are not plentiful enough to make trees or shrubs appear the worse for their attacks, or rarely. By far the preponderance of our moths are not only slight in form but small in size; the many of the tortrix tribe with bell-shaped wings, which, when caterpillars, exercise their skill in rolling or contorting leaves, and the still less tineæ species of varied habit. Some of the little moths are so numerous that their caterpillars can do more harm than we should suppose; fortunately they are much sought by insect-eating birds.—ENTOMOLOGIST.

HOW TREES ARE BUILT.

It is generally known that the cone is the strongest structure in Nature. Trees may be regarded as arborescent cones, for if we examine the stem and branches of them when denuded of the leaves we perceive at once that they are so constructed. The main stem is broadest at its base, and decreases gradually towards the ends of the branches. A branch in the side place, where a side branch starts from, is thicker than the side branch, and this in turn is thicker than the branchlet it produces. In this way the thickness of the main stem steps away, so to say, by degrees from branch to branch, finally losing itself almost in the thin branchlets of the latest shoots.

A transverse section of a Beech tree, for example, shows a number of concentric and almost circular beds of wood, ensheathing one another about a common centre, which is occupied by a canal of pith, the whole being covered by the bark on the outside of the stem. A longitudinal section, however, shows that the stem is composed of a number of superposed and hollow elongated cones, the older ones forming a foundation for the new ones then forming and of succeeding years. The conical growth results from the conical formation of the first shoots, and is the foundation of the subsequent annual additions of wood and bark, for as these are deposited in strata parallel with the first year's wood and bark the conical form of the later layers is necessarily maintained. Growth in thickness and length is therefore the result of the same vegetative cause—the formation each year of a fresh conical layer, which extends from the bottom to the top of the tree. It is therefore evident that between the dimensions of length and breadth the branches are more cylindrical the longer they are, and more conical in proportion as they are shorter.

As conclusive examples of well-marked conical growth, those extremely short shoots termed thorns may be mentioned—the Blackthorn, for instance. That thorns are simply abortive branches is at once proved by the wild Plum tree, for in this tree, when transplanted and cultivated, the thorns soon develop into branches. The Willow, on the contrary, is an instance where the branches tend to a more cylindrical form. In consequence of this the branches of it are longer and very pendulous, their water-like curvature being extremely graceful, and as they wave backwards and forwards in the wind the tree presents a very picturesque appearance. All the Coniferæ are naturally conical-growing trees, and this is even apparent in their appearance. The Juniper, Red Cedar, Spruce Firs, Pine, and others, when seen even in the distance, clearly reveal by their outlines their conical growth.

This conical form is generally the original form of all trees in their early life. At first growth takes place in the direction of the main stem, and that of the branches is restricted; but after some years the stem grows to its greatest height, and then the growth is diverted to the branches, which then lose their conical outline, and spreading out around form a dome-shaped or hemispherical top or crown. This is particularly observable in the Horse Chestnut, the Lime, and the Elm, which by reason of this upper development impart a fine appearance to a park, in addition to the further recommendation of affording a perfect shade around their base. In the Coniferæ this development does not take place, for the tree stops at the first stage, and therefore ever retains its cone-like appearance. For this reason, as also too that on account of the simple character of their leaves and flowers, coniferous trees are considered as of a low type of organisation.

Trees undoubtedly derive their elaborate formative material from their leaves. This is apparent even in a single shoot, the figure of which depends on the manner in which the leaves are disposed on its surface; for as wood is formed by the leaves, when these are placed in regular order over every part of the circumference of the shoot, as in the Beech and Lime, the shoot is always necessarily cylindrical, for the woody matter proceeding from the leaves is thus distributed equally on all sides; but when the shoots are opposite or in pairs placed at right angles, as in the Maple, the descent of nourishing matter from them is necessarily limited to that portion of the stem immediately below, and consequently the young shoots and branches of such trees are square. All, however, depends upon the leaves. If the vital activity of these latter is too weak to form wood, if they remain crowded together at the top in clusters, there is no increase in breadth. Take shoots of the Horse Chestnut, for example. One shoot may be conical, the other cylindrical. The conical shoot is the growth of a year, the cylindrical perhaps of ten years, yet they are both about of a size. As their woody matter was derived from the leaves which clothed them, it follows that in the case of the ten-years shoot very little was supplied, and hence it is cylindrical, not conical, like the one year's growth. It follows that the breadth of the wood rings annually formed, and which we see in the transverse section of the stem, must also

correspond with the amount of entire leaf surface which is put forth into the atmosphere during the vegetative season.

To prove this we need only select branches the leaves of whose side shoots are annually put forth as leaf clusters, and which, therefore, exhibit but a minimum of development, and consequently exercise the least possible physiological influence on the branch, and where powerful growths are suddenly succeeded by growths greatly retarded. It is often seen that the three inner rings or woody layers formed by the leaves of the first three-years growth are much broader than the four outer rings, the leaf deposits of the next four years.

These evidences and others conclusively demonstrate that the breadth of the wood rings is determined, not by the activity of the leaves of the terminal shoot of the main stem, but that the leaves

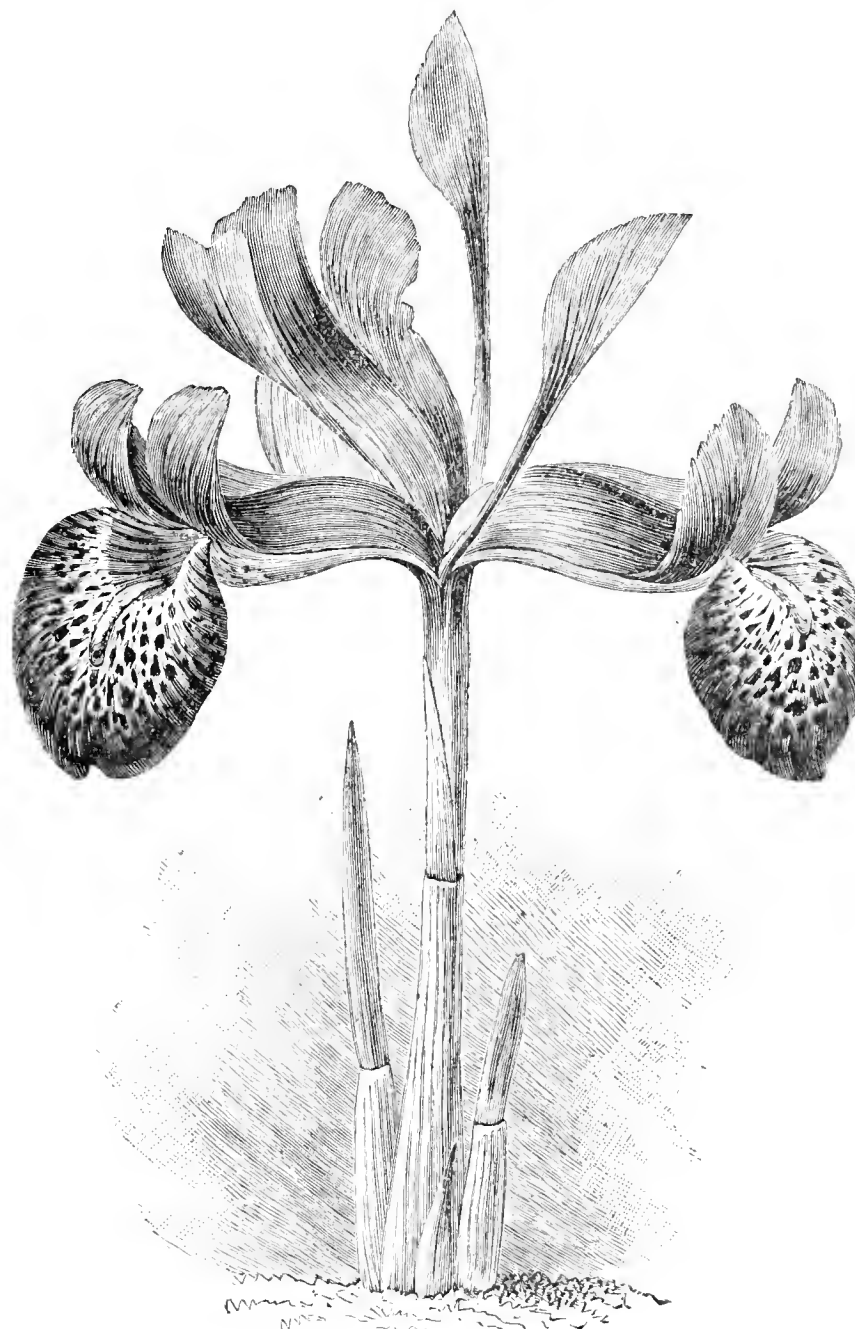


FIG. 27.—IRIS HISTRIOIDES. (See page 112.)

of the side shoots, or of the whole system of shoots, co-operate. Therefore the leafage of each year forms a common source whence is derived not only the nutriment forming the new layer of each branch or system of shoots, but of the main stem—the support of all. The leaves are therefore indubitably the source of the elaborately formative material which they furnish to the shoots, from the shoots to the branchlets, and from these latter to the branches, whose ultimate union forms the main stem of the tree, just as many little rivulets, with their tributary streams, furnish, when united, a river, and eventually a sea.

Thus in the course of years solid and enduring vegetable monuments are reared, nothing but air and earth, yet woven by magic chemistry as it were from these first elements which outlive generations of mankind. Nature builds on the conical principle to insure stability, which is the inevitable result of her work.—WM. NORMAN BROWN.

THE BUNYARD CENTENARY SHOW.—We are pleased to hear, as a result of the show which was held at Maidstone last autumn, that 5 guineas each have been sent to the Gardeners' Royal Benevolent Institution, the Royal Gardeners' Orphan Fund, and the Maidstone Church Institute.

HINTS ON FORCING.

(Concluded from page 93.)

ROSES are at all times highly prized by flower lovers, and during the early spring months they are especially valued, for then they have a freshness and delicacy which fully compensates for the lack of size and substance the blooms show. Roses are, indeed, the floral queens of spring as well as of summertime. It is not a particularly difficult matter to obtain a few blooms throughout the winter, but flowers produced during December and January do not last long when cut owing to the sharp forcing the plants have to be subjected to, and for the same reason the crop per plant is not a large one. For these reasons the majority of cultivators do not begin forcing till the end of January or early in February. The plants then make rapid headway with the help of a little fire heat.

Tea Roses in pots were at one time left in the open air till wanted for forcing. The plan adopted was to plunge the pots over their rims in ashes early in the autumn, and on the appearance of severe weather straw or bracken was scattered over the shoots to afford some protection. A much better plan, however, is to place the plants under glass in October; any structure from which frost is excluded answers very well. With this treatment the wood is preserved in good condition, and the buds plump up ready for an early start. The pruning should be done some time during January, but it ought not to be a severe one. I have tried various practices, and have come to the conclusion that, except in a few instances, the best results are obtained when the knife is but sparingly used. I usually thin out such weak shoots as are not likely to flower, remove those branches which show signs of decay, and cut away the unripened points of very strong ones.

Some varieties of Teas send up strong suckers which grow to a great length. A good way to deal with these is to insert a few stakes round the sides of the pot, and coil such shoots around them. This, of course, changes their position from an upright to a horizontal one, and therefore somewhat checks the flow of sap, which has the effect of converting a "robber" into a useful member of the plant that produces it, as these strong shoots when so treated often eventually bear very fine blooms.

After the pruning is completed it is a good plan to syringe the plants with a solution of one of the many good insecticides now in commerce. The surface soil ought then to be removed, and a top-dressing given. A suitable compost for this purpose is one formed of good fibrous loam, inclined to be heavy rather than light, with a tenth of bonemeal added. Some cultivators pot at this stage any plants that are in comparatively small pots. I do not favour the practice, because I find with so many good artificial manures in the market it is an easy matter to feed liberally enough to enable the plants, without undue strain, to perfect a crop of flowers; by that time the roots are active, and the plant in the right condition for potting. With all Roses in pots I like to do the potting when they are in the open air during the summer months.

When the plants have been top-dressed a good method of procedure is to place half the number in a forcing house or vinery where a night temperature of from 55° to 60° is maintained, with a rise of 10° during the day, the other half being transferred to a cool greenhouse. By these means a good succession of flowers is maintained. The plants in heat will require copious syringings occasionally when the weather is bright, and fumigating whenever green aphides make their appearance. As soon as the growths are about an inch in length the weaker ones should be removed, as such never produce creditable flowers, and are therefore not wanted.

When pruning Hybrid Perpetuals totally different tactics must be followed, as in their case a free use of the knife is essential to success. Old and enfeebled shoots should first be cut away, weak side shoots removed, and the remainder shortened back to from one to three eyes of their base—i.e., the point from which they started last year, the strongest of course being allowed to retain the maximum number of eyes. When blanks occur through the removal of old shoots, young ones near may be left 9 inches in length to fill up the vacancy. Regular attention to such matters will result in shapely well-balanced plants, which when in flower have a much better appearance than ill-shaped ones, and are moreover likely to produce a greater percentage of fine blooms.

As soon as the flower buds are visible feeding becomes an important detail of culture. Liquid manure obtained from cesspools into which the drainage from stables and cowsheds is conducted is excellent for the purpose, if given in a greatly diluted state, about the colour of brown brandy. If this is applied two or three times weekly, and a dose of soot water given as well, the plants will be kept in good health. Artificial manure, if applied to the surface of the soil when the flower buds are swelling, is also a practice productive of fine results; indeed, where there is any difficulty in obtaining natural liquid manure, the artificial fertilisers may be depended upon entirely. The following varieties are some of the best for growing in pots.

TEA-SCENTED.—Adam, Anna Ollivier, Catherine Mermet, Comtesse de Nadaillac, Grace Darling, Hon. Edith Gifford, Homère, Isabella Sprunt, Madame Lambert, Madame de Watteville, Ma Capucine, Niphetos, Perle de Lyon, Safrano, The Bride, and Madame Falcot.

HYBRID PERPETUALS.—Beauty of Waltham, Fisher Holmes, Général Jacqueminot, John Hopper, La France, Mrs. J. Laing, Pride of Waltham, Marie Verdier, and Marie Baumann.—PLANTSMAN.

ROYAL HORTICULTURAL SOCIETY.

DRILL HALL, FEBRUARY 9TH.

THE meeting of the various Committees at the Drill Hall on the above date was large both as regards attendance and the number of exhibits. The display was bright, varied, and extremely interesting, each division—Fruit, Floral, and Orchid—being well represented.

FRUIT COMMITTEE.—Present: P. Crowley, Esq. (in the chair); with Rev. W. Wilks, and Messrs. T. F. Rivers, G. Banyard, J. Cheal, J. H. Veitch, A. F. Barron, T. J. Saltmarsh, G. W. Cummins, A. H. Pearson, T. Fife, G. Norman, J. Smith, J. Willard, H. Balderson, F. Q. Lane, G. Sage, G. Reynolds, W. Bates, T. Farr, C. Herrin, W. Pope, A. Dean, and J. Wright.

As will be seen, there was a large attendance of members; but the products submitted for examination were limited.

Major Thornhill, Stanton Hall, Bakewell (Mr. G. Harvey, gardener), sent a plate of very fine Lemons, grown on the back wall of a house. A cultural commendation was unanimously awarded.

Messrs. Rivers & Son sent fine specimens of an Apple named *Carmen*—a flattish striped Apple, especially near the base; also fruits of *Prince Edward Apple*, soft and sweet, juicy, and pleasant; in appearance intermediate between Cox's Pomona and Cellini (award of merit). Messrs. Rivers also sent specimens of St. Martin's Apple. An award of merit was granted for this variety in the autumn, and the dark conical fruits were still in good condition.

Messrs. Rivers & Son had a very good table of fruit, consisting of thirty dishes of Apples and Oranges, and a silver Knightian medal was unanimously awarded.

Messrs. J. Cheal & Sons arranged sixty dishes of Apples and Pears, several very fine, and the exhibit highly creditable. A silver-gilt medal was awarded without a dissentient vote.

VEITCHIAN PRIZES FOR DESSERT FRUIT.—*Pears*.—First, R. Leigh, Esq. (gardener, Mr. Woodward) with *Passe Crasanne*; second, Mr. Owen Thomas, with *Ne Plus Meuris*. *Apples*.—First, Mr. W. H. Divers, Belvoir Castle, with *Blenheim Orange*; second, Mr. James Hudson, Gunnersbury, with *Scarlet Nonpareil*.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with Messrs. H. B. May, C. T. Drury, R. Dean, J. H. Fitt, R. Owen, G. Stevens, J. F. McLeod, R. B. Lowe, C. J. Salter, J. Jennings, H. J. Jones, H. J. Cutbush, J. Peed, C. Jeffries, R. M. Hogg, W. Bain, J. D. Pawle, C. E. Pearson, C. E. Shea, C. Blick, H. Turner, G. Paul, J. W. Barr, E. Beckett, J. Fraser, and J. Laing.

Miscellaneous flowering and foliage plants in excellent condition and considerable variety came from Messrs. J. Peed & Sons, Norwood Road. Amongst them were Roman Hyacinths, Lily of the Valley, Cyclamens, Begonias, Prunus, Crotons, and Palms. The stand arranged by Messrs. J. Laing & Sons, Forest Hill, was largely composed of Palms, Ferns, Dracanas, and Isolepis, the whole making a good display. Mr. T. S. Ware, Tottenham, staged hardy bulbous flowers. Sprays of Lily of the Valley, arranged with their own foliage, came from Messrs. Young and Co., Stevenage.

A collection of hardy forced shrubs was exhibited by Mr. G. Wythes, gardener to Earl Percy, Syon House, Brentford, which demonstrated the utility of this class of plants. Specimens of *Staphylea colchica* were carrying hundreds of flowers, while the branches of double white *Prunus* were wreathed with blooms. The group was edged with Roman Hyacinths and Narcissi, Lily of the Valley, Tulips, and Ferns. Mr. J. Willard, Holly Lodge, Highgate, sent six immense plants of *Begonia Gloire de Sceaux*, in which beauty had partially given way to coarseness.

S. Parnell, Esq., Woodlands, Streatham, sent a small group of Narcissi in variety. Plants of *Cyclamens* were exhibited by Messrs. H. Low and Co., Clapton. Mr. Chas. Turner, Slough, staged finely flowered *Cyclamens*. The colours were varied and good. Hardy flowers, including Scillas, Narcissi, Snowdrops, *Iris histrioides* (fig. 27, page 111), were shown by Messrs. Barr & Son, King Street, Covent Garden. Messrs. Cannell and Sons, Swanley, sent a magnificent collection of *Primulas*, comprising *pyramidalis rotundiflora alba*, *Mary George*, *Eynsford White*, *Future Queen*, *Eynsford Red*, *Swanley Blue*, *White Perfection*, *Glowworm*, *White Swan*, *Swanley Giant*, *Cannell's White*, *Cannell's Pink*, and many others. Messrs. B. S. Williams & Son, Upper Holloway, staged plants of *Azalea mollis* in variety.

Messrs. J. Veitch & Sons, Ltd., sent specimens of *Rhododendron hybrids*, *Rhodora canadensis*, and *Spiraea confusa*.

ORCHID COMMITTEE.—Present: S. Courtauld, Esq. (in the chair); with Messrs. De B. Crawshaw, J. O'Brien, H. M. Pollett, H. Ballantine, N. C. Cookson, E. Ashworth, J. T. Gabriel, H. Williams, F. J. Thorne, H. J. Chapman, W. H. Young, T. W. Bond, C. Winn, J. Douglas, J. Jacques, E. Hill, J. G. Fowler, and T. B. Haywood.

Messrs. J. Veitch & Sons, Ltd., Royal Exotic Nursery, Chelsea, staged a superb exhibit of Orchids. These were *Laelio-Cattleya Pallas*, *Cypripedium Harrisianum superbum* Oreson, *Selligerum* Mrs. Canham and *Euryades*, *Cœlogyne cristata*, *Denrobium euosmum roseum*, *euosmum virginale*, *Cordelia flavescens* and *Domini*, with many others.

Messrs. F. Sander & Co., St. Albans, also sent Orchids, in which *Cattleyas*, *Cypripediums*, *Lycaste*, and *Odontoglossums* were noticeable. Messrs. H. Low & Co.'s exhibit was composed mainly of *Dendrobiums*, and Messrs. B. S. Williams & Son's of *Cypripediums*. Mr. W. H. Young, Orchid grower to Sir F. Wigan, East Sheen, sent flowers of *Phalaenopsis*.

CERTIFICATES AND AWARDS OF MERIT.

Cattleya Trianae eximium (L. Linden).—A superb form. The large sepals are very delicate rose, the narrow petals being of the same hue. The lip is a grand feature: The outer portion is rich crimson, the throat being yellow on the lower portion and soft rose on the upper, this shade extending to the fimbriated margin (award of merit).

Cattleya Trianae Imperator (L. Linden).—The sepals and petals of this variety are rose. The lip is rich velvety maroon (award of merit).

Iris Bakeriana (R. Wallace & Co.).—With the exception of the lip the whole of this flower is pale blue. The fall is white with blue spots, the extremity being rich velvety deep indigo blue (first-class certificate).

Lælio-Cattleya Violetta (J. Veitch & Sons, Limited).—Pure rose is the colour of the petals and sepals of this hybrid. The lip is crimson with white fimbriated edges (award of merit).

Phalenopsis Hebe (J. Veitch & Sons, Limited).—This is a hybrid, resulting from a cross between *P. rosea* and *P. Sanderiana*. The sepals and petals are white, flushed rose, and the lip rose, shading pale brown at the base (award of merit).

Violet Amiral Avellon (T. Cripps & Son).—Deliciously fragrant is this single Violet (award of merit).

ANNUAL GENERAL MEETING.

ON Tuesday last the annual general meeting of the Royal Horticultural Society was held at the Offices, 117, Victoria Street, S.W. The chair was taken by Sir Trevor Lawrence, Bart., the popular President of the Society. The meeting was an excellent one, upwards of eighty members being present. At three o'clock precisely the Chairman called upon the Secretary to read the minutes of the last annual general meeting, these being afterwards signed as correct. Many new Fellows were then elected, and Messrs. J. Cheal and H. Turner were appointed scrutineers of the ballot for the election of three members to the Council in place of Sir Alexander J. Arbuthnot, K.C.S.I., H. J. Pearson, Esq., and G. Bunyard, Esq., who, in accordance with the Charter, had to retire. Sir Trevor spoke in high terms of the services that had been rendered by these gentlemen both to the Society and to horticulture. Messrs. Norman C. Cookson, William Marshall, and Harry J. Veitch were elected to the Council in place of those retiring.

The report and balance-sheet published several days ago were taken as read, a copy having been sent to all Fellows of the Society. In moving the adoption of both of these, Sir Trevor was very happy and *apropos*. Each salient point was brought lucidly forward. He said he was glad to be convinced that the year had been one of useful work smoothly and happily done, and considered that the Council's verdict of satisfactory was fully justified. The several alterations that have been made at Chiswick during the year were adverted to, and attention was called to the fact that it was just ten years since it was found imperative to quit South Kensington. Mr. Wright's services at Chiswick were eulogised in no stinted terms, the Chairman saying that the Superintendent's skill and sound knowledge were already clearly perceptible.

Continuing, the new departure of "painting all Orchids that received an award of merit or a certificate" was referred to, and thanks were again given to fruit growers who had sent trees to Chiswick, and to the many readers of excellent papers. Financially everything was deemed satisfactory, and the membership was annually increasing. Several other things were noted, Sir Trevor concluding with a glowing tribute to that most excellent of Secretaries, the Rev. W. Wilks. The expressions relative to Mr. Wilks were received with acclamation, as were others referring to Mr. J. Weathers, the Assistant Secretary. Professor Michael Foster seconded the adoption of the report. His remarks were terse and interesting, and were hailed with much pleasure by the members. On the proposition being put to the meeting it was carried unanimously.

Mr. G. Bunyard proposed a vote of thanks to Sir Trevor Lawrence for his admirable services. This, after being seconded by Dr. M. T. Masters, was, it is needless to say, passed with full accord. The meeting then closed.

REPORT OF THE COUNCIL FOR 1896-97.

THE Council are glad to be able to report the conclusion of a full and satisfactory year's work.

Financially, the balance in hand is not as large as it was last year, but this is more than accounted for by the extraordinary expenditure which the Council felt able to undertake at Chiswick, the whole of which has been defrayed out of income. The conservatory at the entrance to the gardens, which had for so many years required repair, has been entirely removed, and replaced by a building in every respect worthy of the Society; and the two old greenhouses, Nos. 1 and 2, which had been an eyesore to the gardens by reason of their ruinous condition for almost a generation, have been remodelled and rebuilt. The total of this extraordinary expenditure is over £500.

Under the head of ordinary expenditure at Chiswick £1870 has been spent on the general work and repairs and keeping up of the gardens. Amongst other work House No. 17 has been practically rebuilt, Nos. 15 and 6 have been very thoroughly repaired; the young men's bothies have also been put in good order and made more comfortable. The receipts by sale of surplus produce amount to £344, making the net ordinary cost of the gardens £1526.

The Council have every reason to congratulate themselves and the Society upon the selection which they made to fill the office of Garden Superintendent.

At Westminster nineteen Fruit and Floral meetings have been held in the Drill Hall, James Street, Victoria Street, and six Committee meetings have been held at Chiswick, besides the larger shows in the

Temple Gardens on May 19th, 20th, and 21st and at the Crystal Palace on October 1st, 2nd, and 3rd. Lectures have been delivered at fifteen of the meetings, exclusive of those given at the Crystal Palace. The number of awards granted by the Council, on the recommendation of the various Committees, has been as follows:—

AWARD.	At Provincial Shows.	On the Recommendation of the					Total.
		Scientific Committee.	Fruit Committee.	Floral Committee.	Orchid Committee.	Narcissus Committee.	
Gold Medal ...	1	—	1	3	1	—	6
Silver-gilt Flora ...	5	—	—	17	1	1	24
Silver-gilt Knightian ...	2	—	9	—	—	—	11
Silver-gilt Banksian ...	1	—	1	10	1	—	13
Silver Flora ...	13	—	—	68	34	—	115
Silver Knightian ...	2	—	16	—	—	—	18
Silver Banksian ...	8	—	22	78	43	1	152
Bronze Flora ...	—	—	—	7	—	—	7
Bronze Knightian ...	—	—	4	—	—	—	4
Bronze Banksian ...	—	—	5	26	5	—	36
First-class Certificate ...	4	—	8	36	36	—	84
Award of Merit ...	17	—	23	210	100	2	352
Botanical Certificate ...	1	1	—	2	47	—	51
Cultural Commendation ...	8	—	13	6	35	—	62
Highly Commended ...	10	—	—	—	—	—	10
Commended ...	3	—	—	—	—	—	3
Total ...	75	1	102	463	303	4	948

The Council must again express their opinion that there still appears to be a tendency to multiply unduly the awards recommended, and they earnestly request the several Committees to consider seriously whether there is not a real danger of impairing the value of these distinctions by such increase of their number, and whether it would not be possible, as well as politic, to be somewhat less generous in the recommendation of awards during the ensuing year. This is a question which the Council cannot but regard with solicitude, and they hope that every member of the Committees will consider that he has a real individual responsibility for the welfare of the Society in this matter.

The work of the Committees has of late increased so considerably that the delay of communication between the Council and the Committees has on several occasions caused great inconvenience. The Council, therefore, think it well to revert to an old rule of the Society, that the Chairmen of the principal Committees shall in future be chosen from among the members of Council.

At the unanimous request of the Orchid Committee, and on certain members of it undertaking to pay a third of the expense, the Council have arranged to have paintings made of all the flowers certificated by this Committee. Exhibitors must, therefore, distinctly understand that in submitting their flowers in future to the Committee, they thereby tacitly consent to their being painted should they obtain any award, and must hold themselves ready to give all reasonable facility to the Society's artist to do so. The Orchid Committee desire to have these paintings as an accurate record of the characters and peculiarities of the plants to which awards are made, finding it practically impossible for their members to bear in mind the details of numerous flowers often seen but once.

The Council desire to draw the attention of all Fellows of the Society to the more extended use which the Scientific Committee might be to them if they availed themselves more freely of their privileges in submitting instances of diseases of or injuries to plants, caused by insects or otherwise. The Scientific Committee is composed of gentlemen qualified to give the best advice on all such subjects, either in respect to the prevention or cure of disease. The Committee is also glad to receive specimens of malformation or other subjects of horticultural or botanical interest.

The Council wish to express their thanks to the Director of the Royal Gardens, Kew, for allowing them to consult Mr. Massee, F.L.S., on the fungoid diseases, &c., brought before the Scientific Committee, and to that gentleman for his readiness in giving them the advantage of his knowledge and advice.

The Society's great show, held (by the continued kindness of the Treasurer and Benchers) in the Inner Temple Gardens, was as successful as ever, and it is a matter of satisfaction to the Council to find that this meeting is now universally acknowledged to be the leading horticultural exhibition of this country. The best thanks of the Society are due to all who kindly brought their plants for exhibition, or otherwise contributed to the success of this show.

The exhibition of British grown fruit, held by the Society at the Crystal Palace on October 1st, 2nd, and 3rd, was, considering the season, eminently satisfactory. Full particulars will be found in vol. xx., part 2, of the Journal, issued in December.

As an object lesson in British fruit cultivation this annual show stands unrivalled, and is of national importance. The Council invite Fellows and their friends to support it, for it cannot be too widely known that the continuance of the show year by year is absolutely dependent on at least £100 being raised by subscriptions each year towards the prize fund. The show involves the Council in a very

large expenditure without the possibility of any return. They have therefore established the rule that they will not continue it unless sufficient interest in it is taken by Fellows and their friends to raise £100 towards the Prize Fund. Subscriptions for this purpose should be sent at once to the Secretary, 117, Victoria Street, Westminster, and if the list prove satisfactory the schedule will be issued in April, and the show held on September 30th and October 1st and 2nd, 1897. The list of subscribers for 1896 will be found on page 129 of vol. xx., part 2, of the Society's Journal.

Deputations were sent by the Council at the invitation of the local authorities to attend the great horticultural gatherings at York in June, and at Chester in August, 1896. Full particulars of these visits will be found in the Society's Journal, vol. xx., part 1, p. xxvii., and vol. xx., part 2, p. cxxx. The Council cannot, however, refrain from taking this opportunity of congratulating York and Chester on the admirable displays of horticultural skill and enterprise made at their respective fêtes and galas, and of recording the very great pleasure which these visits gave them, and their appreciation of the great courtesy and hospitality with which they were received in both cities.

The Journal of the Society has been continued so as to enable Fellows at a distance to enter more fully into and reap the benefits of the study and work of those actively engaged at head-quarters. Vol. xix., part 3, and parts 1 and 2 of vol. xx., were issued during the year, and vol. xx., part 3, is now almost ready for issue.

In January, 1893, the Council published a list of all the plants, flowers, fruits, and vegetables certificated from the year 1859 to 1892. A supplement is now ready, bringing the list down to December, 1896. Each part is issued at the price of 1s., but the two together may be obtained for 1s. 6d., at the Society's Office.

An examination in the principles and practice of horticulture was held on May 1st, concurrently in different parts of the United Kingdom, a centre being established wherever a magistrate, or clergyman, or schoolmaster, or other responsible person accustomed to examinations would consent to superintend one on the Society's behalf, and in accordance with the rules laid down for its conduct. No limit as to the age, position, or previous training of the candidates was imposed, and the Examination was open to both sexes. 152 candidates presented themselves for examination. The names and addresses of those who succeeded in satisfying the examiners, together with the number of marks assigned to each, will be found in the Society's Journal, vol. xx., part 1, 1896, page 58.

It is proposed to hold a similar examination in 1897, but at the request of those most nearly concerned the date has been altered to Tuesday, April 6th, so as not to clash with the examinations held at the beginning of May by the Science and Art Department. Candidates wishing to sit for the Examination should make application during February to the Secretary, R.H.S. Office, 117, Victoria Street, Westminster.

The Council have heard with much pleasure that N. N. Sherwood, Esq., Master of the Worshipful Company of Gardeners, has most kindly offered, in connection with the Society's 1897 Examination, a Scholarship of £25 a year for two years; full particulars of which will be found in the Society's arrangements for 1897, lately issued to all Fellows. Another similar Scholarship has been promised for 1898, by G. W. Burrows, Esq., a member of the Court of the same Worshipful Company.

Acting in conjunction with the Lindley Trustees, the Council have devoted considerable attention to the library. All serial publications have been kept up to date, a large number of valuable volumes have been bound, and the following new books, amongst others, added to the library—viz., "The Student's Handbook of British Mosses," "Les Vignes Americaines," "Useful Plants of Japan," "Orchids of South Africa," Scott's "Flowerless Plants," &c., &c.

A sum of £129 has been received for the catalogue fund, which was started in 1894, and the proof sheets of the catalogue are now in the hands of the printer.

The hearty thanks of the Society are due to all the members of the standing Committees—viz., the Scientific, the Fruit and Vegetable, the Floral, the Orchid, and the Narcissus Committees, for the kind and patient attention which they have severally given to their departments.

The best thanks of the Society are also due to all those who, either at home or abroad, have so kindly presented books to the library or plants or seeds to the gardens. A list of the donors has been prepared, and will be found in the Society's Journal, vol. xx., part 3, 1897, now almost ready for issue. Where so many have been generous it almost appears invidious to mention any by name, yet the Council think it only their duty on behalf of the Fellows to publicly thank the principal donors, amongst whom have been Messrs. George Bunyard & Co. of Maidstone, Mr. John Fraser of Woodford, Messrs. Lee & Son of Hammersmith, Messrs. Paul & Son of Chesham, Messrs. J. R. Pearson & Sons of Chilwell, Messrs. T. Rivers & Son of Sawbridgeworth, and Messrs. James Veitch & Sons of Chelsea.

The Council wish to express, in their own name and in that of the Fellows of the Society, their great indebtedness to all who have so kindly contributed, either by the exhibition of plants, fruits, flowers, or vegetables, or by the reading of papers, to the success of the fortnightly meetings in the Drill Hall. They are glad to find by the increased and increasing number of visitors that the Society's fortnightly meetings are at last becoming appreciated by the Fellows and public in general. In their judgment these shows, which take place at short intervals throughout the year, furnish horticultural displays and teach horticultural lessons which cannot be obtained elsewhere in the kingdom.

The papers read at these meetings, which have been or will shortly be published in the Journal, are as follows:—March 10th—"Melons," by Mr. J. Barkham. March 24th—"Saladings," by Mr. W. Iggulden. April 21st—"Pine Apples," by Mr. H. W. Ward. May 5th—"Species and Varieties of Tulips," by Mr. J. G. Baker, F.R.S. June 9th—"The Movements of Plants," by the Rev. Prof. George Henslow, M.A. June 23rd—"Gardeners Past, Present, and Future," by Mr. S. Heaton. July 14th—"New Roses," by the Rev. H. J. Pemberton, M.A. July 28th—"Cacti," by Mr. E. H. Chapman. August 11th—"Fern Generation," by Mr. C. T. Druery, F.L.S. August 25th—"Forcing Lilies of the Valley," by Mr. T. Jannoch. September 8th—"Gladioli," by Mr. J. Burrell. October 1st—"Fruit Growing from a Food Point of View," by Mr. E. J. Baillie, F.L.S. October 2nd—"Cider and Perry Industry," by Mr. C. W. Radcliffe Cooke, M.P. October 3rd—"Gathering, Storing, and Use of Apples and Pears," by Mr. J. Watkins. October 13th—"Hardy Summer Flowers," by Mr. E. Burrell. October 27—"Chrysanthemums," by Mr. W. H. Lees. November 10th—"Seed Growing," by Mr. R. Fife. November 24th—Floral demonstration by the Rev. Prof. George Henslow, M.A.

The Council have the sad duty of recording the death of twenty-two Fellows during the year, and among them they regret to find the names of Baron Sir Ferdinand Von Mueller, one of the most staunch and energetic supporters of the Society in Australia; Dr. Trimen, Bruce Findlay, Richard Bloxam, Henry Seeborn, T. A. Gledstanes, Anthony Waterer, the Earl of Darnley, Sir Joseph Prestwich, Lord Savile, Robert Warner, Sir Julian Goldsmid, George Prince, and Marmaduke Lawson.

The following table will show the Society's progress in regard to numerical strength during the past year:—

DEATHS IN 1896.				FELLOWS ELECTED 1896.			
		£	s. d.			£	s. d.
Life Fellows ...	6	0	0 0	4 Guineas.....	4	16	16 0
4 Guineas.....	0	0	0 0	2 "	85	178	10 0
2 "	11	23	2 0	1 "	297	311	17 0
1 "	5	5	5 0	Associates.....	9	4	14 6
				Affiliated Soc's.	14	15	15 0
	22	£28	7 0	Communitations	5		
				= £123 9s.			
					414	£527	12 6
				Deduct loss	114	9	0
				Net Increase in Income ...	£413	3	6
RESIGNATIONS.							
		£	s. d.				
4 Guineas.....	0	0	0 0	New Fellows, &c.....	414		
2 "	14	29	8 0	Deduct Resignations and			
1 "	54	56	14 0	Deaths	90		
	68	£86	2 0				
Total loss	90	£114	9 0	Numerical Increase	324		

A scheme for the affiliation of local Horticultural Societies was put forward in 1890, and eighty-three local societies have availed themselves of it. The Council express the hope that Fellows will promote the affiliation of local Horticultural and Cottage Garden Societies in their own immediate neighbourhood.

Subjoined is the usual Revenue and Expenditure Account, with the balance-sheet for the year ending December 31st, 1896.

The programme for the ensuing year will be found in the arrangements for the year 1897, lately issued to all Fellows.

At the request of some of the Fellows, the Council have arranged to send a reminder of every show (in the week preceding it) to any Fellow who will send to the R.H.S. Office, 117, Victoria Street, Westminster, twenty-two halfpenny post-cards, fully addressed to himself, or to whomsoever he wishes the reminder sent.

The Council recommend that the salaries of the principal officers of the Society—the Secretary, the Assistant Secretary, the Superintendent, and the Assistant Superintendent should continue as heretofore.

The Council have had before them various proposals for celebrating the attainment by Her Most Gracious Majesty the Queen, Patron of the Society, of the longest reign in English history. Some of these proposals were for one reason or another found to be impracticable, others were found to involve a far larger expenditure of money than the Society can command or could reasonably hope in so short a period to collect. They have therefore after most careful consideration decided, with Her Majesty's gracious permission, (i) to strike a special medal or medallion, to be called the Victoria Medal of Horticulture and to be awarded *honoris causa* in the domain of horticulture. They will also (ii.) join in the celebration of the event which is to take place at the great show to be held at Shrewsbury in August, to which they have received a very cordial invitation.

The proposal to strike a Victoria Medal of Honour has been submitted to Her Majesty, who whilst refraining in this as in all other cases from expressing any personal opinion on the proposed method of commemorating the sixtieth year of her reign, graciously adds that she "has no possible objection to raise" either to the proposal itself or to the name to be given to the Medal.

The Council in closing their report desire most respectfully to tender to Her Majesty the most sincere and thankful congratulations on the approaching completion of the sixtieth year of her beneficent and auspicious reign, and they are confident that every Fellow of the Society will join with them in saying "God save the Queen."

ANNUAL REVENUE AND EXPENDITURE ACCOUNT FOR THE YEAR ENDING 31st DECEMBER, 1896.

Dr.	£	s.	d.	£	s.	d.
To ESTABLISHMENT EXPENSES—						
Salaries and Wages	677	1	0			
Rent of Office	173	3	0			
Printing and Stationery	226	7	1			
Journal—Printing and Postage	553	0	6			
Postage	96	14	6			
Coal and Gas	4	19	10			
Donation to Auricula and Primula Society	10	0	0			
Miscellaneous	119	11	1			
Commission on Advertisements	24	6	7			
Lindley Library	20	0	0			
				1905	3	7
„ SHOWS AND MEETINGS—						
Rent of Drill Hall and Cleaning	102	12	0			
Temple Show	602	3	3			
Crystal Palace Fruit Show	279	0	5			
Prizes and Medals—						
Rose Show	50	10	0			
Committees' Awards, &c.	387	9	10			
Printing, &c.	10	4	6			
Labour	75	6	6			
				1507	6	6
„ CHISWICK GARDENS—						
Rent, Rates, Taxes, and Insurance	283	0	10			
Superintendent's Salary, &c.	218	0	0			
Pension, late Superintendent	180	0	0			
Labour	742	19	5			
Implements, Manure, Soil, Packing, &c.	141	13	9			
Coal and Coke	169	15	0			
Repairs, Ordinary	66	14	11			
Repairs, Extraordinary	506	10	0			
Water and Gas	22	5	1			
Miscellaneous	45	8	5			
				2376	7	5
				5788	17	6
„ Balance to General Revenue Account				155	8	2
				£5944	5	8

Cr.	£	s.	d.	£	s.	d.
By ANNUAL SUBSCRIPTIONS				3562	5	6
„ DONATION				1	1	0
„ SHOWS AND MEETINGS—						
Temple Show	1138	3	1			
Crystal Palace Fruit Show	238	2	5			
Drill Hall Meetings	30	19	0			
Prizes and Medals	51	15	5			
				1458	19	11
„ ADVERTISEMENTS IN JOURNAL, &c.				324	7	7
„ SALE OF JOURNAL				53	15	7
„ MISCELLANEOUS RECEIPTS				75	8	7
„ DIVIDENDS, &c.—						
Davis Bequest and Parry's Legacy	56	18	4			
Consols, £1750	16	0	8			
Local Loans, £500	14	10	0			
Interest on Deposits	6	19	4			
				124	8	4
„ CHISWICK GARDENS—						
Produce sold	318	19	9			
Admissions	5	4	3			
Miscellaneous	19	15	2			
				343	19	2
				£5944	5	8

We have examined the above Accounts, and find the same correct.

Signed A. H. PEARSON,
HARRY TURNER,
JAMES H. VEITCH, } Auditors.
HARPER BROS., Chartered Accountants,
10, Trinity Square, E.C.

7th January, 1897.

BALANCE-SHEET, 31st DECEMBER, 1896.

	£	s.	d.	£	s.	d.
To SUNDRY CREDITORS				172	3	9
„ Subscriptions, 1897, paid in advance				85	11	6
„ Advertisements, 1897, paid in advance				6	10	0
„ Life Compositions, 31st December, 1895	246	15	0			
„ Ditto ditto 1896	123	9	0			
				370	4	0
„ Veitch Special Prize				30	0	0
„ GENERAL REVENUE ACCOUNT—						
Balance, 1st January, 1896	3613	4	7			
Less Bad Debts	13	12	0			
	£3599	12	7			
„ Balance for the year 1896, as per Revenue and Expenditure Account	155	8	2			
				3755	0	9
				£4419	10	0

We have examined the above Accounts, and find the same correct.

Signed A. H. PEARSON,
HARRY TURNER,
JAMES H. VEITCH, } Auditors.
HARPER BROS., Chartered Accountants,
10, Trinity Square, E.C.

7th January, 1897.

	£	s.	d.	£	s.	d.
By SUNDRY DEBTORS—						
Annual Subscriptions Outstanding, estimated at	15	15	0			
Garden Produce	15	2	5			
Advertisements	117	12	9			
Rates and Taxes (Chiswick) paid in advance	28	5	0			
Interest on Local Loans	3	12	6			
				180	7	8
„ INVESTMENTS—						
2½ per cent. Consols £2122 8s. 9d. ... cost	1892	11	3			
(2022 8s. 9d. of this sum is held by the Society, subject to the provisions of the will of the late J. Davis, Esq.)						
2½ per cent. Consols £1750 cost	1768	5	0			
3 per cent. Local Loans £500	557	11	0			
				4218	7	3
„ CASH AT LONDON AND COUNTY BANK—						
On Current Account	17	8	4			
„ CASH IN HAND—						
Head Office	1	7	11			
Chiswick	1	18	10			
				20	15	1
				£4419	10	0

POTATO COOKING.

It will be remembered by the readers of the *Journal of Horticulture* that a report appeared on the tercentenary of the Potato in Dublin on December 7th, page 587. In it extracts from the speeches delivered by His Excellency the Lord Lieutenant was reported, and a paragraph at the end of the report struck me very forcibly, and appeared most appropriate to the occasion.

If a small amount of space can be found for a repetition of the paragraph alluded to it will serve the purpose of my letter. His Excellency is reported to have said, "You may grow your Potato, and you may bring it in triumph into your house; but if you don't know how to cook it it is impossible to appreciate it at its full value. I rather wish that the gentlemen who have promoted this exhibition had one section in which to show us how to cook our Potatoes. Englishmen are absolutely hopeless in this line of business, and I can only say for myself—I say so with all due respect to Lady Cadogan—that I never see a Potato properly cooked in my own house. Since I have been in Ireland a large number of my friends have broken bread in my house, but it is not too much to say that not one of them could have broken the Potatoes there. Mine are waxy, hard, and thoroughly indigestible, and if any lady would kindly allow my cook to come down and see how Potatoes are cooked in Ireland my presence here will have a result which will be a blessing for the remainder of my life."

After such an exposure of incompetency as this I thought some of our sensitive cooks would have been stimulated into some sort of defensiveness on their cooking capabilities; but to my surprise no reference has been made to the subject. I am tempted to pen this note through the receipt of a trade pamphlet, entitled "Allotment Holders' Guide, Seed and Plant List." In it is much valuable information, but when the author gives his advice how to treat Potatoes before cooking I beg to differ entirely from him. He says:—"After Christmas I have all my Potatoes peeled overnight and laid in cold water until wanted to cook. I beg all to try this; they will find it greatly improves them."

What has our Irish friend to say to such advice as this? Would not a few short notes in the *Journal* from an Irish source be very acceptable and probably of some benefit to many of its readers? If our Potato spoilers were to see, as I have done, the beautiful, tempting, floury balls turned out by the Irish, strangers to the customs of these people would not be so surprised when told that many a family in that part of Her Majesty's kingdom make many a meal on nothing else. A finer, stronger, and healthier race of people are not to be found in the United Kingdom. But reverse it. Put before those people and compel them to eat those indigestible things called by some English cooks Potatoes. I fear they would soon become subjects of weakness and debility. —J. E.



WEATHER IN LONDON.—The weather in London during the past week has been characterised by many changes. On Thursday night of last week rain fell heavily, as it did on Friday. Saturday and Sunday brought slight night frosts, but on Monday it was wet again. Tuesday and Wednesday were very dull, though little rain fell on either day.

— WEATHER IN THE NORTH.—The weather for a week has been very unpleasant. The frost gave way on the 3rd inst., and was followed for several days by a cold undecided thaw with easterly wind. On Saturday afternoon the wind set into the west, and the snow rapidly disappeared. The morning of Tuesday was inclined to be showery with a brisk breeze from the west.—B. D., *S. Perthshire*.

— DEATH OF MRS. FOSTER-MELLIAR.—It is with extreme regret, in which numbers of rosarians and others will share, that we have to record the death of the beloved wife of the Rev. A. Foster-Melliar, which occurred at Sproughton Rectory, near Ipswich, on Thursday morning last. The deceased lady had been seriously ill for some time, but under the best procurable medical skill and attention it was hoped she would survive. We are informed, however, that the combination of diphtheria, pneumonia, and pleurisy so weakened her, that after the fever part of the illness she had not strength to rally. Mrs. Foster-Melliar was a most charming lady, taken away in the prime of life. Her loss will be deeply mourned by a sorrowing family, and unbounded sympathy extended to the Rector in his great bereavement.

— SHROPSHIRE HORTICULTURAL SOCIETY.—The annual meeting of the members of this Society was held on Monday last, February 8th, under the presidency of the Mayor of Shrewsbury in the absence of Sir W. O. Corbet, Bart., the President. The accounts submitted showed that the receipts for the year were nearly £4300, of which sum over £3000 was for admission by ticket or payment at the entrance alone. The subscriptions amounted to £445, other receipts making up the amount named. The expenses of the floral fête were about £3100, and the gross profit on the fête was £1200. After deducting the expenses of the spring show and sundry sums voted the net profit of the year was £1015, which will be expended as has been announced in the erection of a bronze statue to Charles Darwin. The cash prizes awarded were considerably over £800. Lord Kenyon was elected President for 1897. The commemorative show to be held in August next in connection with the R.H.S. was referred to in the report, and no expense will be spared to make this show one of the finest in England. Hearty votes of thanks were given to the Hon. Secretaries, Messrs. Adnitt and Naunton, and the other officials of the Society.

— HORTICULTURAL CLUB.—The twenty-second annual dinner of the members and friends of this Club was held at the Hotel Windsor, Victoria Street, Westminster, on Tuesday evening last. The highly respected President of the Club, Sir John D. T. Llewelyn, Bart., M.P., though engaged in the House of Commons during the dinner, hastened away immediately after the division on a subject with which he was closely identified in time to conduct the after proceedings, which he did with consummate ability and tact. The tables were beautifully, in fact almost too heavily, decorated with plants and flowers by Messrs. Veitch and Sons, Limited, while fruit was abundantly supplied by Messrs. Assbee, Monro, Rivers, Bunyard, and others. Mr. George Bunyard also contributed substantially to the musical part of the proceedings; his son, Mr. Ashdown Bunyard, ably presiding at the pianoforte, and a "Band of Brothers," the Messrs. Lamb, being brought from Maidstone—a quartette of vocalists who gave great satisfaction. Mr. Harry Turner also demonstrated his mastery over the concertina in the rendering of charming solos. In addition to the loyal toasts, were given the "Horticultural Club," the "Royal Horticultural Society," the "Visitors," and the "Chairman." Among the guests were the Clerks to the Ancient City Guilds, the Gardeners' and the Fruiterers' Companies, Mr. J. Wright, *Journal of Horticulture*, and Mr. S. T. Wright, Chiswick. The principal speakers were the Chairman, Secretary, Mr. George Paul, Mr. C. E. Shea, and Mr. George Bunyard, and a very pleasant evening was spent by all who were present on the enjoyable occasion.

— GARDENING APPOINTMENTS.—Mr. Mark Woollard, for seven years foreman at Thoresby, has been appointed gardener to — Gill, Esq., Woodheys Hall, Ashton-upon-Mersey. Mr. H. T. Martin, for nearly four years foreman with Mr. E. Beckett, Aldenham House Gardens, has been appointed gardener to the Right Hon. Lord Leigh, Stoneleigh Abbey, Kenilworth.

— GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Readers will recollect our calling attention (page 46) to the Victorian Era Fund, promulgated for the temporary assistance of candidates awaiting election. We are glad to announce that in aid of this excellent fund a performance of the well-known comedy-opera "Dorothy" will be given by the Westminster Amateur Operatic and Dramatic Society at St. George's Hall, Langham Place, on Thursday, February 18th, 1897. Considering the object of the performance, it is to be hoped that the response will be hearty, and that the fund will benefit to a material extent. Tickets may be obtained from Mr. H. Morgan Veitch, 16, Clifford's Inn, E.C., who is Secretary for the performance.

— ROOTING CARNATION CUTTINGS.—The various methods of rooting Carnation cuttings were ably described by Mr. W. Bardney on page 73. Last summer I tried for the first time the "mossing dodge," which I saw described in the "Field" some time previously, and was surprised at how well it succeeded. A cut is made through a joint, as in the process of layering. A small piece of stone or cinder is placed in the cut to keep it open, and a piece of moss tied round it. The plants were kept syringed to keep the moss moist, and in three weeks the cuttings were fit to cut off and place in small pots, moss and all. This refers to Malmaisons. By this means shoots too short to layer can be rooted just as easily and safely as longer ones will by layering.—R. I.

— ISLE OF WIGHT HORTICULTURAL ASSOCIATION.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at the Guildhall, Newport, on Saturday last. Dr. Groves, B.A., J.P., presided over a large audience to hear a paper read by Mr. H. J. Jones of Ryecroft Nurseries, Lewisham, on the Chrysanthemum. Mr. Jones, in a lengthy, well written essay, dealt with the cultivation of "mums" from the taking of the cuttings to staging the blooms at exhibitions. At the close a collection was made in aid of the Gardeners' Benevolent and Orphan Funds, which amounted to £2 4s. Several new members were elected. The next lecture will be given by Mr. W. Lubbeck, F.R.H.S., Brooke House, I.W., on "Winter Vegetables."

— BALANCING ACCOUNTS.—When a few days since I rode by train along a great portion of the county of Surrey traversed by the river Wey, which finally empties into Father Thames, the parent, or at any rate the recipient just now of so many other flowing streams, and saw how for many miles and in all directions it had overflowed its banks, covering hundreds of acres of land with its flood, I could but realise that Nature had been not merely balancing accounts, but doing so with compound interest. Now there can be no doubt but that deficiencies of previous years have been made up, and all the rain that may fall, as probably much will fall during the present traditional fill-ditch month, will be largely surplusage. Like to a gorged stomach, the land not only cries "Hold, enough," but seems to reject what now falls of water, and thus every ditch, and streamlet, and river is more than full. It is rather more than two years since we had such heavy and continuous rains, but so far happily the present ones have not been followed by such disasters. Those floods, too, of the winter of 1894-95 were followed by intense frosts, such as we have to encounter about once only in a lifetime. It does not seem at all probable that frosts of any severe character will now follow, and indeed we hope it may not be so. Light porous soils are wet enough and the subsoils thoroughly saturated, whilst stiff clays are in a terribly sodden state. These specially need a dry time to enable them to part with their too abundant moisture ere baking March winds come. We may be certain now that trees, shrubs, or all deep-rooting things will not lack root moisture during the ensuing summer.—A. D.

— 113° IN THE SHADE.—The mail brings tidings of intense heat in New South Wales at Christmas time. In Sydney it was bad, but at Broken Hill, with 113° in the shade, it was unbearable. At Wilcannia a terrible dust storm prevailed; at Maitland very considerable damage was done to the Grape crops. The Vine in the sister colony, at Bendigo, is being harassed by the old enemy, phylloxera. On December 27th showers fell in Melbourne charged with a finely powdered substance of a reddish tinge, and the streets presented the appearance of having been stained with red.

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of the Society, to be held at the Institution of Civil Engineers, Great George Street, Westminster, on Wednesday, the 17th inst., at 7.30 P.M., the following papers will be read:—"Report on the Phenological Observations for 1896," by Edward Mawley, F.R.H.S., President; "Results of Observations on Haze and Transparency near Haslemere, Surrey," by the Hon. F. A. Rollo Russell, M.A., F.R.Met.Soc.

— **WEATHER AT DOWLAIS.**—The following is a summary of the weather here for the past month:—Rainfall, 2.68 inches; snow, 0.59; making a total fall of 3.27 inches. Maximum for rain, 0.74 on the 6th; and for snow, 0.20 on the 26th. Total amount of sunshine, 49 hours 40 minutes. There were fifteen sunless days. Temperature, mean maximum for month, 0.37°; ditto minimum, 0.27°; mean average for the month, 0.32°. The wind was in the N. and N.E. on twenty days. There were bitter winds for several days, and outdoor work was suspended for the whole of the month.—WM. MABBOTT, *Dowlais, South Wales*.

— **SUSSEX RAINFALL.**—The total rainfall at Abbot's Leigh, Haywards Heath, for the past month was 2.34 inches, being 0.21 inch above the average. The heaviest fall was 0.46 inch on the 8th; rain fell on fourteen days. The maximum temperature was 47° on the 7th and 10th, the minimum 22° on the 22nd and 24th. Mean maximum 39.05°; mean minimum 31.21°. Mean temperature 35.13°, which is 0.81° below the average. The frost and snow which came on the 23rd gave way on the 30th, and is now (February 1st) all gone, except where it was drifted.—R. I.

— **THE WEATHER LAST MONTH.**—January was cold, but severe frost only occurred on 23rd and 24th. The ground was covered with snow for the last fifteen days. The wind was in a northerly direction sixteen days. Total rainfall 1.44 inch, which fell on twenty-two days, the greatest daily fall being 0.32 inch on 7th. The total is 0.34 inch below the average for the month. Barometer (corrected and reduced) highest reading 30.544 inches on the 2nd at 9 A.M., lowest 29.340 inches 30th at 9 A.M. Temperature, highest in the shade 47° on 1st; lowest 22° on 23rd and 24th. Mean of daily maxima 37.29°; mean of daily minima 29.83°. Mean temperature of the month 33.56°. Lowest on the grass 17° on the 24th; highest in the sun, 92° on the 23rd. Mean of earth at 3 feet 39.90°. Total sunshine 49 hrs. 30 min. We had thirteen sunless days, seven of them in succession, 7th to 13th.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham*.

— **CARDIFF HORTICULTURAL SOCIETY.**—The annual general meeting of this Society was held on the 4th inst., under the presidency of Alderman W. J. Trounce, J.P. A large number attended, and it was resolved to hold the Show on August 11th and 12th. The past year was a most successful one, and a substantial balance is carried forward. The following are the officers:—President, The Mayor of Cardiff; Chairman, Mr. W. C. Peace; Vice-Chairman, Mr. A. E. Dixon; Secretary, Mr. H. Gillett, and an executive committee of nine members. The name of the Society was altered to the Cardiff and County Horticultural Society.

— **WORKSOP ROSE AND HORTICULTURAL SOCIETY.**—After the most strenuous efforts of a few ardent amateurs and gardeners, whose labours merited a much better public response than has been accorded, it has been determined to suspend the operations of this Society. The annual meeting of the Society was held at the Royal Hotel on Friday evening. Mr. H. V. Machin, J.P., the President, and an ardent supporter of the Society, occupied the chair, and there was also a good attendance of members. Seeing that the gate money at the last show was only £33 2s., and that there was only a balance of £13 2s. 1d. in the Treasurer's hands, the position of the Society was explained at some length by the Chairman and the Vice-President, and after considerable discussion it was decided on the motion of Mr. Alderman, seconded by Mr. Crasp, that it would be advisable to dissolve the Society. As to the balance in hand, it was proposed by Mr. Crasp, and seconded by Mr. Stewart, that the money be handed over to the Gardeners' Royal Benevolent Institution. An amendment was proposed by Mr. Cookman, and seconded by Mr. Ancock, that the balance be placed in the hands of Messrs. H. V. Machin, J. S. Whall, and G. Baxter, with power to hand the same or any part thereof to any horticultural society which may be established to their satisfaction in the district within three years, and that if no such society be established, the money at the end of that time be handed over to the Institution named. On a vote being taken the amendment was carried by eight to four. Votes of thanks were passed to the officers of the Society for their services during the past year, and on the motion of Mr. Whall, a similar compliment was paid to Mr. Machin for all his past efforts in connection with the Society.

— **MR. A. F. UPSTONE.**—We learn that Mr. A. F. Upstone, formerly with Messrs. Daniels Bros., Norwich, and James Veitch & Sons, Chelsea, has taken over the seed and florist business carried on for so many years by Messrs. Cobban & Son, Market Place, Rotherham.

— **NITON HORTICULTURAL SOCIETY.**—The annual meeting of the Niton Horticultural and Cottage Garden Society was held on Friday, February 5th. The balance-sheet showed £3 5s. in the hands of the Treasurer. A. V. Innes-Vine, Esq., was re-elected President, Mr. J. W. Creeth Treasurer, and Mr. W. Cotton Secretary. Special prizes are offered at the next show, to be held on August 18th, by Messrs. Sutton & Sons and Messrs. Toogood & Sons.

— **JANUARY WEATHER AT HODSOCK PRIORY, WORKSOP.**—Mean temperature, 33.9°. Maximum in the screen, 45.7°; minimum in the screen, 19.9°; minimum on the grass, 12°. Number of frosts in the shade, twenty-one; on the grass, twenty-five. Sunshine, 38.5 hours, or 16 per cent. of possible duration. Rainfall, 2.37 inches. Rain fell on twenty-three days. Maximum fall, 0.76° on the 7th. The first part wet; the rest of the month cold and wintry. Day temperature very low, but no severe frost at nights.—J. MALLENDER.

— **DEATH OF MR. H. BOSWELL.**—The death has occurred at Headington of Mr. Henry Boswell, of 50, Cornmarket Street, Oxford, the eminent bryologist. The deceased had not only studied the Mosses of Britain, but had an intimate acquaintance with a great number of foreign species, and his knowledge was utilised by many correspondents in different parts of the world. Mr. Boswell had named and described several new Mosses. He possessed a large collection, which it is hoped will be secured by the University. In recognition of his services to bryological science Oxford University conferred upon him in 1887 the honorary degree of Master of Arts.

— **BIRMINGHAM GARDENERS' ASSOCIATION.**—The annual tea and social gathering of the members and lady friends of this Society was held at the Colonnade Hotel recently, when nearly 100 persons were present. An excellent programme, consisting of vocal and instrumental music, was provided, with appropriate speeches delivered by Mr. W. B. Latham (the genial Chairman), Mr. Walter Jones (the Vice-Chairman), and various others. Much praise also was due to the energetic Hon. Secretary, Mr. John Hughes, for his painstaking arrangements. More than one member adverted to the beneficial influence of the Society in local gardening since its inauguration, eleven years ago, under the influential patronage of the late Sir Thomas Martineau. The Association continues to flourish, under the esteemed presidency of Mr. A. Winkler Wills, F.C.S.—W. G.

— **A "GRAND OLD MAN."**—The late Mr. Charles Jenner, brother of Sir William Jenner, the distinguished physician, to whom I incidentally alluded in a recent contribution as possessing the first plant of the Crimson Rambler Rose that came to this country, was a collector of statuary, and a great cultivator of alpine flowers. Now that his residence near Edinburgh has been sold, I hope that his exceptionally valuable alpine and herbaceous garden, containing many treasures of the most attractive kind, of which some years ago I wrote a description in a London journal, may not be permitted to fall into decay. Few places in Scotland possessed greater fascination for the lover of alpine flowers. I do not know if it was ever visited by your gifted correspondent, Mr. S. Arnott, to whom I feel certain that Mr. Jenner's unique collection would have been singularly interesting.—DAVID R. WILLAMSON.

— **THE LATE EARL OF KINNOULL.**—George, eleventh Earl of Kinnoull, died at Torquay, 31st January, 1897, and was interred at the family burying ground on 6th February. This popular nobleman was seventy years of age, and long held a distinguished position in the county of Perth. His Lordship was much esteemed by agriculturists, arboriculturists, and horticulturists, by reason of the great interest he took in them and encouragement he gave to these industries. The splendid policies of Dapplin give tangible proof of the love which the late Earl and Countess (who died two years ago) had for the adornment of the beautiful grounds around the Castle. By the picturesque drives, walks, and even the public highways many Coniferae are thriving admirably, and being in prominent positions are very effective. The able and courteous gardener and estate manager, Mr. Browning, is one of the best known and most respected of his class in the North. The floral display in the private chapel and at the graveyard was elaborate. Lord Hay of Kinfauns is successor to the titles and estates. It is believed that the good taste which has been manifested for generations of ancestors at Dupplin will not be lacking in the future at that princely seat.—M. TEMPLE, *Carron, N.B.*



LÆLIO-CATTLEYA NYSA SUPERBA.

WHEN *Lælio-Cattleya Nysa* was exhibited by Messrs. Jas. Veitch & Sons, Ltd, it attracted, by its distinct and charming beauty, a wonderful amount of attention amongst orchidists, and any varieties of the type are eagerly sought for. One of these, named L.-C. N. *superba*, when staged at the Drill Hall by the same firm on November 10th of last year, was promptly accorded a first-class certificate by the Orchid Committee of the Royal Horticultural Society. Such a recognition was thoroughly deserved, for in it the many excellent points of the type are intensified. Our woodcut (fig. 28) will convey to readers the form of the flower, while the colour of the sepals and petals is soft rose, and that of the superb lip rich velvety crimson with golden side lobes.

POTTING ORCHIDS—PSEUDO-BULBS DECAYING.

1, In potting Orchids that have not increased in size would it be preferable to clean away the old material and repot in the same sized pot or to let the old ball remain and increase the size of the pot. 2, Is there any remedy to prevent the entire decay of *Cattleya labiata* pseudo-bulbs when attacked with mildew, arising from dampness in the sheath after blooming, and what treatment is advisable, besides proper ventilation and careful watering, to prevent such attacks altogether?—C.

[Whether or not a plant requires a larger pot when renewing the compost depends partly upon the habit of the species, but more upon how it is thriving. In every case it is advisable to remove as much of the old material as possible without unduly disturbing the roots. We have just been repotting some large plants of *Cymbidium giganteum*. These had completely filled their pots with roots, enwrapping firmly every particle of both compost and drainage. To have pulled these roots about would have been very unwise, as a check to the plants would have been inevitable. But these are exceptionally vigorous rooters, and therefore come in for exceptional treatment. In all ordinary cases the point you urge is quite right. With regard to the sheaths decaying on *Cattleya labiata*, either this is the result of a cold drip or the plants have been kept too moist in a lower temperature than they require. Cutting half way through the sheath in removing the flower spikes tends to this condition of things, but with otherwise healthy plants in a suitable atmosphere it would not occur. The only remedy at all likely to be successful is removing the sheath entire when the decay is first noticed, carefully avoiding injury to the pseudo-bulbs in so doing. We wish you every success in your laudable effort to excel in the culture of this beautiful and interesting class of plant.]

EELWORM ERADICATION.

INFORMATION WANTED.

I HOPE now the Chrysanthemum season is over you will give space in the Journal for Mr. Abbey to make clear his statements respecting eelworm in Cucumbers and Tomatoes and proposed remedies. Many of us market growers will soon be planting our "Cues and Toms" by the thousand. In these days of keen competition we cannot afford to do much experimenting, and then find supposed remedies useless as in the case of the 10 per cent. of lime treatment. In my experience Tomatoes or Cucumbers could not survive such treatment. I found them dead in twenty-four hours after applying 10 per cent. of lime to soil that Professor Gilchrist pronounced deficient in lime previous to using it.

I hope Mr. Abbey will see his way to write on maladies and remedies in a way that we can all understand. Unfortunately we were born too soon for participating in the advantages of such education as is available now in any art or science that a youth may wish to study, so kindly assist us by placing information before us in plain clear terms easily to be comprehended—that is the best of teaching and the most appreciated.

When are we to be favoured with Mr. Iggulden's "little sensation" that he promised Mr. Abbey long ago? This public promise remains unfulfilled. We are anxiously awaiting the fulfilment, and hope not to be disappointed. A promise made public is a public engagement. We want to hear of a remedy which will speedily annihilate the eelworm, and so rid us of this dreadful pest.

For twelve years I had no trouble with it, as at that time I used Jensen's fish manure 1 part to 100 of soil, with 1 part each of lime and soot; unfortunately, I cannot obtain it now, I only wish I could. Not only does eelworm attack Cucumbers and Tomatoes, but Cyclamens, Primulas, and Carnations suffer from its depredations.

I consider this a most important subject, and one that affects a great industry, so that we shall be very much obliged, Mr. Editor, if you will kindly insert this letter in your valuable paper.—JOHN BRADLEY.

[The letter is readily inserted, and we shall be obliged by the results of experience clearly and plainly described, in conquering one of the most insidious and destructive enemies of plants. We are bound to say, however, that many persons rely too much on "remedies" instead of taking timely action in the way of "preventives." When eelworms become embedded in the tissues of plants they are the masters of the situation. The information given on page 93 last week ought to be interesting and useful, but the manure formulæ, good as they may be, will not kill eelworm in the tissues of the plants; and we suspect it is easier to kill eelworms and their eggs in the laboratory than in the soil. The time is opportune for Mr. Iggulden to give the results of his experiments. He sent us the best flavoured Tomatoes last year that we tasted during the whole season. It would be interesting to know how long the 10 per cent. of lime had been mixed in the soil before it killed Mr. Bradley's plants.]

A WANT AND A WAIL.

POOR FLORA! Unhappy Pomona! Not even in the mighty modern Babylon, where your most ardent worshippers would fain see a noble temple rear its head, is there to be a place for you save on sufferance in uncongenial surroundings. Considering the immense importance of the subject to the gardening fraternity generally and to the higher exponents of horticultural art in particular, it is not surprising that the question has received considerable attention of late; but it must be a matter for regret to feel that we "too oft begin in pomp and show to end as little and as low." Perhaps it is impossible to sever luxuriant associations from horticultural art, hence we are carried away from the actually necessary into the realms of palatial and magnificent design—splendid dreams, never to be realised in our day; worthy, indeed, of the object, but sufficient to court defeat under the dominion of the severely practical spirit of the age.

The powerful stimulus afforded this year to our loyal and patriotic feelings will doubtless take some practical form consonant with our own peculiar requirements. It has, in fact, already done so; but so far as this subject is directly concerned it appears to have been taken up and dropped as quickly as the proverbial hot Potato. There is no occasion to draw invidious comparisons between schemes relating to this subject and those benevolent ones which have been propounded. "The Gardeners' Royal Benevolent Institution" is worthy of all the support it will obtain, and of a great deal more than gardeners as a class have ever given to it; but great and good and noble as it is, one would like to express a passing thought upon that provided by our text ere it is relegated to obscurity. Obscurity? It may be that it is not so; that the yearly progress of gardening will increase in corresponding ratio the already keenly felt want, and that even we may live to see Mr. Wood's dream realised. Yet all too sanguine an expectation mayhap on those lofty lines, and granted that unfortunately this is the case then may one venture to ask, Is there no *via media* worthy of attention by which the object might be gained? Ere our jubilant feelings are for the nonce wholly diverted into other channels, however praiseworthy, this horticultural building scheme should not, I think, be wholly a shattered idol.

There are, I suppose, but few exhibitors who have not felt the want we are dealing with, and to most horticultural societies it is the one thing needful—viz., a permanent building adapted to the purpose in which they may be practically independent of the weather and not dependent at any time upon makeshift lodgings. Truly there is nothing more pleasing to all concerned than a battle under canvas in balmy weather, but when it comes to a battle with the elements which too often reign (rain) triumphant there is nothing more depressing—a depression seriously affecting the receipts. On one occasion our Society, which had pitched its tents in congenial surroundings, was worsted in the encounter with Boreas, who literally drew a curtain over the scene by bringing down poles and canvas at one fell swoop on specimen plants, flowers, and fruits. Too often have circumstances compelled me to stay under a dripping tent sharing the honours with the bands-

men, who, huddled up in greatcoats, endeavoured to do their duty by the occasional tootling of a muffled march.

To complete a dismal picture and sharpen the point of the moral one instance may be added of an experience which was absolutely startling. "Beggars must not be choosers," and pecuniary considerations are weighty ones to a society with a light exchequer. As an exhibitor I had on various occasions participated in the advantages afforded by the gratuitous use of a noble building which answered the purpose very well indeed. On a never-to-be-forgotten day, eager to escape from the "madding crowd" and the brassiest of brass bands, I wandered through a side door into regions where I certainly had no business and found no pleasure. Encountering a garrulous official connected with the building, whose desire for baksheesh—coupled with some homage paid to Bacchus—had overcome his discretion, he asked with a maudlin air of mystery, "Would I like to see something? If so, come along." So I went "along," and saw "something"—a dozen "somethings"—which, however necessary in the interests of surgical science, were ghastly to contemplate in juxtaposition to the gay and festive scene of a flower show. Sickened and sad I returned to the halls of life and gaiety after plenshing the palm of the beery janitor, who, turning the key on this chamber of horrors, kept out, I sincerely hope, further trespassers.

Yes; undoubtedly we do want suitable temples to enshrine our gardening handiwork when occasion demands; and to come direct to the question one might infer that such things are possible of attainment, and of all places one might, moreover, reasonably expect London to lead the way. If we cannot have what we would like—the luxuriant

temple—and can never like what we have to resort to, why not consider the actually necessary ere all hope is abandoned of immediate progress in this direction? Given a suitable site—or the most suitable attainable—what then? Something to make it independent of the weather. Canvas being out of the question, the next suitable material suggesting itself for the purpose is timber and glass, or iron and glass—a winter garden, in fact, not rising in palatial domes, for such apparently are only practicable on paper. But fatal objections have been raised against the use of glass in a smoke-laden atmosphere. Might not this be overcome in a ridge and furrow roof by having the furrows (gutters supported on the columns) of sufficient width to allow freedom of access for cleansing the blackmoor periodically? To repeat the idea, simply covering in our imaginary area on the Paxtonian principle of ridge and furrow with the necessary accompaniments of heating and ventilation, with no pretensions to the palatial and no aspirations but the essential.

"What an ugly thing this horticultural hall would be" is remarked. Could be, undoubtedly, with any attempts at elabora-

tion of detail; but simply adapted to the purpose less all pretensions to anything else, there is the necessary—there is, in fact, beauty in all things according to their fitness of purpose. Certainly you could not drop this glass market by the side of St. Paul's, and I am not competent to say where it could be placed—or, in fact, could not be placed—for such would not enter into competition with any stately buildings or any preconceived plans which seem fated to fall through. Whatever plans are projected the main object is, of course, the first consideration, the next being some catering for the public taste in due allowance of space for the musical adjunct, which appears to be indispensable, many of our patrons including those "who to the show repair, not for the doctrine but the music there." Here, I think, we may venture to draw the line, and not house our twin goddesses in a palace of varieties.

As a permanent place for its purpose we may suppose that

various details, such as planting the supporting pillars with trailing or bush plants of a semi-hardy nature, would be a welcome addition to the staging effects of competition, and even such things as Lily-decked pools or fountains with rockwork margins would be a pleasing feature, neither costly nor irrelevant. Under the roof of such a building our often foreshortened exhibitions might well be prolonged so far as plants and plant groups are concerned, for the admirable taste, skill, and labour expended upon them by exhibitors in the latter section is of sufficient educational value to warrant a reasonable extension, instead of the rapid dismantling after a few hours' display.

I am tempted to show a hundred minor accessories which crop up mentally, but have not the slightest doubt that a

hundred major objections would spring up side by side to choke them at their birth. Anyway, our wants are pretty clear, though this be but another of those Chateaux d'Espagne erected by—FREEMASON.

TEA ROSE ENCHANTRESS.—I am somewhat surprised to find myself saying on page 91 of the *Journal of Horticulture* that Mr. Wm. Paul's latest and perhaps most beautiful introduction, entitled Enchantress, is "worthy at least of China extraction." If the word "partly" is substituted for "worthy" my readers will understand better the meaning I intended to convey. I understand that Enchantress, which I admired greatly when I saw it for the first time at Waltham Cross two years ago, is the result of cross-fertilisation between a Tea and a China Rose, a fact which may account for its wonderful perpetuity and rare floriferousness. I hope this is only the bright beginning of a new race of interesting hybrids combining the characteristics of the Chinas and the Teas. Such Roses, by reason of their fragrance, their delicate beauty, and extremely free-flowering capabilities, would be of the greatest value for garden decoration. I hope, therefore, that Enchantress may have many successors of a similar description.—DAVID R. WILLIAMSON.

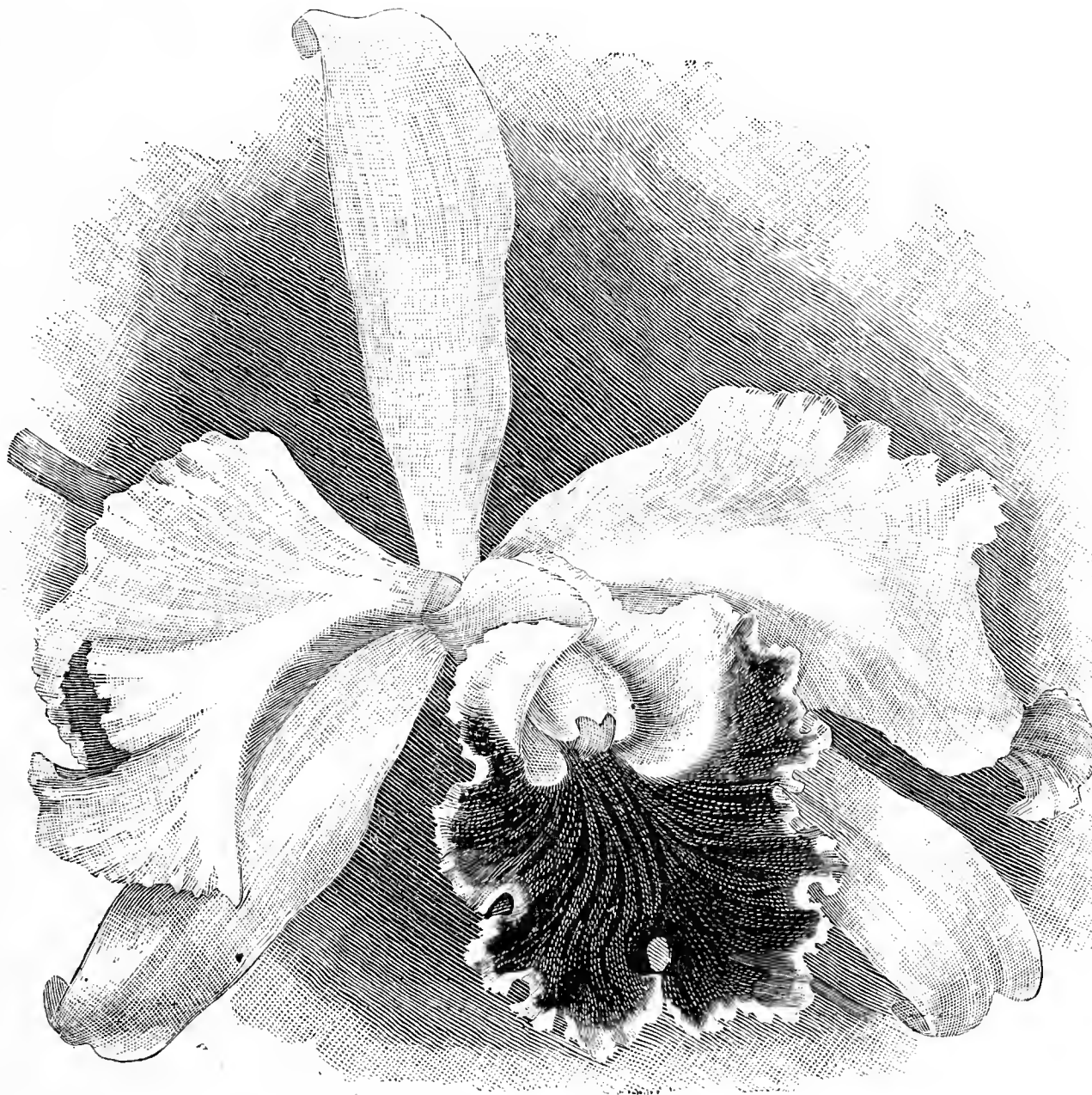


FIG. 28.—LELIO-CATTELYA NYSA SUPERBA.



DIAMOND JUBILEE PRIZES.

At the last Committee meeting of the Ulster Horticultural Society it was decided to celebrate the Diamond Jubilee of the Queen this year by offering £100 and three medals for competition in forty-eight Japanese blooms at the Belfast show, on 16th and 17th November next. The money is to be divided into seven prizes, as follows:—First, £40 and gold medal; second, £25 and silver medal; third, £15 and bronze medal; fourth, £10; fifth, £5; sixth, £3; and seventh, £2. The Committee decided to open this event, along with a few others, to gardeners of the United Kingdom. The prize is to be called the Victoria Jubilee Championship, and is presented by the Lady Mayoress of Belfast and ladies of Ulster.

PRIDE OF MADFORD AND BEAUTY OF TEIGNMOUTH.

I see by your issue of November 5th, 1896 (page 480), there is still some doubt respecting Beauty of Teignmouth Chrysanthemum. I may state that I sent the original plant, Pride of Madford, to my father, Mr. W. Hannaford, of Messrs. Hannaford & Sons, Teignmouth. The names were obliterated in transit, and I did not mention the name in my letter, but merely told them to grow a stock of it. It was thus sent out under the name of Beauty of Teignmouth, and also mentioned a Colonial-raised seedling. It was raised by Mr. Lynch, then gardener at Madford House, Towak, a suburb of Melbourne.

I see in the same number a communication by Mr. T. Pockett. He is a regular enthusiast, and far and away ahead of any other grower in Australia. He has brought Chrysanthemum growing to a great pitch. Last season we had some good seedlings raised here, and I firmly believe Victoria will take the lead in sending out new varieties, as our climate is one of the finest in the world for hybridising and the saving of seed.

I have seen far finer blooms here than at home—that is, ten years since. No doubt improvements have been equally as rapid in the Old Country. I am the horticultural editor of the "Weekly Times," and also on the agricultural staff. I read your paper with great interest, it being quite an old friend.—FRANK HANNAFORD.

[We are very much obliged to Mr. Hannaford for his letter and clear explanation on the subject, and shall be pleased to hear from him again on Chrysanthemum matters and progress in Australia.]

CLASSIFYING INCURVED CHRYSANTHEMUMS.

THE members of the select Committee of the N.C.S., who were appointed to endeavour to settle the above question, have taken a decided step; but whether they have satisfied themselves, let alone the outside public, is a question I much incline to doubt. I openly confess I am not satisfied. When Sir Trevor Lawrence is classed as a Japanese, and Harold Wells, which is a sport from Sir Trevor (and exactly the same in every respect, except colour), had an equal number of votes for and against as an incurved, and the Committee consisted of seventeen members, I am puzzled. Did one member vote both ways? for he surely could not be neutral on a question (as an expert) which he was asked to decide.

Another question seems rather perplexing. If Ma Perfection, Perle Dauphinoise and Egyptian are to be shown as incurved, where will Louise, Miss M. Simpkins, Philadelphia, Mrs. Libbie Allen, Boule d'Or (1895), Challenge, Ada Spaulding, Goliath, J. W. Moorman, Madame Ad. Chatin, and many others, come in?

The Egyptian has incurving florets certainly, but will Messrs Lees and Mease ever stage it in their forty-eight incurved at the N.C.S.? The colour is the only point in its favour. Size ought to count for something certainly, but a neat Mrs. George Rundle, in my opinion, would count more than a rough Egyptian, which is a very late variety, and first crown buds are nothing but quills. Even later buds are quilled half their length (see rough bloom enclosed). In my opinion judges will be more hampered than ever, especially if they are minus the confidence of a "Molyneux." I have heard Mr. Molyneux remark, "If it is staged as a true incurved I give it the benefit of the doubt."

But now comes the point, What about those varieties which have been certificated by the Floral Committee as incurved or Japanese, because the Select Committee have reversed some of their decisions? It will prove chapter 28 in my "Book on Mums," although it was a bold adventure. But good as the members of the Floral Committee may be, as a Committee, have they all, each and every one, grown Chrysanthemums—i.e., sufficiently well to vote with confidence? I really do not mean any offence, Sir Trevor Lawrence was raised from seed in these nurseries. Harold Wells sported from it before it was distributed, and I defy anyone to see the difference in them in any other way except colour. Hence my objection, but the Committee have my best wishes all the same, for I know it is hard to please all, especially—W. WELLS, Earlswood.

[The specimens of Egyptian, as might be expected at this season, are small and loose. On one point, however, there can be no doubt, every floret displays the characteristic twist of the Japanese that is not seen in true incurved Chinese varieties.]

SHEFFIELD CHRYSANTHEMUM SOCIETY.

THE annual dinner of this Society was held on the 2nd inst. in the Masonic Hall, Surrey Street. The chair was occupied by Mr. C. E. Jeffcock, the President of the Society, who was supported by Mr. C. E. Vickers, Mr. A. S. Jarvis, Mr. W. Atkinson, and others. There was a large attendance of members and friends, amongst whom were Messrs. F. W. Littlewood, J. G. Newsham, S. W. Seagrave, J. W. Jarvis, W. P. Atkinson, R. Crosland, J. Haigh, W. Housley, the Secretary, and most of the officials and members of the Society to the number of 100. Delegates attended from the Floral and Paxton Societies of Wakefield, Leeds, Rotherham (two societies—viz., Gardeners' and Floral), Sheffield (Floral), and Walkley. The tables were decorated with plants and cut flowers, and almost the whole of those present wore on the lappels of their coats a choice Orchid or other flower.

The usual loyal toast, "The Queen and Royal Family," was proposed by the President, who referred to her "Diamond Jubilee," and Her Majesty's expected visit to Sheffield in May. The toast was honoured with the usual enthusiasm and loyalty that it always receives in Sheffield. The complimentary toasts next received attention, the first being "The Presidents, Vice-Presidents, and Patrons of the Society," proposed by Mr. J. W. Jarvis in a very appropriate speech, reference being made to the valuable assistance of the President, who was always ready to assist the officials in furthering the interests of the Society. Mr. C. E. Vickers (Vice-President), in his reply, wished the Society every success, and said no other source of recreation was so good, pure, or elevating as the cultivation of flowers, and that nothing was so highly and generally prized as a gift of flowers, esteemed by young and old, rich and poor. Mr. F. W. Littlewood proposed the "Visitors and Kindred Societies," and gave a welcome to all present. Mr. T. Gartery (Rotherham) and Mr. W. Cawsall (Walkley) responded in suitable terms.

"The Sheffield Chrysanthemum Society" was entrusted to Mr. A. S. Jarvis, who congratulated the Society on its financial position, there being a balance in hand on the general account of £80, and one of £50 in favour of the benevolent fund connected with the Society, and also on its possession of its excellent library of works on the varied branches of floriculture, horticulture, and kindred subjects, the gift of the Hon. Treasurer, Mr. H. Broomhead, F.R.H.S. He also spoke of the numerous advantages of the Society generally. His speech was very effective, and was well received. It was duly acknowledged by Mr. J. G. Newsham in appropriate terms.

Mr. W. Housley (the Secretary) proposed the "Nurserymen and Non-competing Exhibitors," and thanked them for the assistance they always so freely rendered at the annual exhibitions. Mr. W. Atkinson (Fisher, Sons and Sibray) replied in a very able manner, and recommended the officials not to lose sight of other flowers in growing and exhibiting Chrysanthemums, and referred to other beautiful flowers that bloomed at the same time worthy of notice. Mr. R. Crosland (Crosland Bros.) also responded. The musical portion of the evening's entertainment was highly satisfactory.—J. H. S.

ENDIVE.

SALAD in some variety is expected to be forthcoming from the majority of good gardens, almost if not daily throughout the year. Where this is so, more than ordinary effort is required to furnish it during the winter months, and until spring Lettuce, Radishes, and Cucumbers are available. Endive plays an important part in meeting this daily demand—indeed, in a number of gardens it would be absolutely impossible to supply salads without it. It is quite true that Endive is not so generally accepted as Lettuce, and with many there would seem to be an acquired taste needed, much in the same way as Tomatoes, before it receives its due appreciation.

Although it may not be necessary to provide for so long a season, it is possible to have Endive for nine months of the year, August to April inclusive; but it is not certain that a succession will be maintained until the latter month. Usually under glass it commences to "bolt" in February and March, earlier or later according to the conditions under which it is grown. At that season it is very impatient of fire heat or pent-up solar warmth, and even in cool houses it is prone to run to seed early. It is only by late sowing on a border outdoors, where it may remain, that it can be depended on for late cutting, and even then it is at the mercy of the weather.

Only once in four seasons have I been able to maintain a supply so late as April, although the attempt has been made in regard to sowing. What may happen this season cannot yet be decided. The sowing was made, the plants at present are very small, too small in fact to give any assurance of what may result. The seeds were sown in the beginning of September, but that being the wettest month of the year the progress of the plants was slow, and has been so ever since. A previous autumn being favourable the plants became too large to stand frost, and the winter of 1894-5 was such that required something very much stronger in constitution than Endive to escape from being frozen to death.

The early portion of the crop is usually the best, and the easiest one to provide, as this has the favour of the late summer wherein to develop a good head, and for which there is generally sufficient accommodation in cool or heated pits where the plants are safe from damaging frosts and heavy rains. But it would need a considerable pit room to meet a fairly large demand from September till March. In my case portions of the

indoor fruit borders have to be devoted to this winter salad, as well as spare pits, and under the shelter of walls they occupy narrow borders at the present time with a hope of being turned to profitable account later on. It is true there is a larger number of late plants this season than usual, from the fact that a quantity of seed remained in the soil and did not germinate until the autumn rains set in, and for the same reason most of the plants were, and are now, undersized.

Small sowings are commenced in June, and continued bi-weekly until August, with a special one made for standing outdoors as previously intimated at the end of August or early in September. This is my practice, but it must necessarily be modified to meet the requirements of other more northern or southern counties; indeed, it is a matter that can only be governed by individual circumstances, and proved on the spot.

Endive without being blanched has no value except for cooking purposes, and there are various means adopted for carrying this out in varying degrees of excellence. Much the best coloured I have seen were taken from the Mushroom house, and some, I daresay, will be prepared to argue that this structure is not always or in every case suitable. The plants are extremely liable to decay in the process of blanching, and if new beds are being made up periodically there must be an accumulation of steam, and, on the other hand, there is a difficulty in getting just the right condition in the soil to accommodate them. Overhead watering to settle them in the soil has been known to prove quite fatal, and shrivelling sets in if they do not get sufficient moisture. Inverted flower pots, with the drainage holes closed, answer very well, and dry boards laid on the rows of plants bring them to a useful state in a comparatively short time.

In pits or frames the lights may be covered with mats or straw to keep them dark, but none of these methods answers so well with me as tying up each plant with a strand of raffia. I am informed that this is the course adopted by some of the French growers, who send such excellent salad to our markets.

The green and moss-curl are very pretty when nicely blanched, and add a feature to the dressed salad, but the broad-leaved varieties are those which find the most favour, and are grown in greater quantity. These possess in a lesser degree the bitterness which is the complaint commonly lodged against Endive as a salad. The curled sorts cannot endure frost nor defy the damp so easily as the Batavian, but notwithstanding these failings they are admired for their beauty when presented in their best form, apart from utility.

Lettuce of the Cabbage section are not appreciated by my employer at any season, so that the necessity for Endive for keeping up a long succession of salad is very important, and Cos varieties grown, as often advised, on the Mustard and Cress principle would not take its place. When Spinach is scarce Endive is often required to take its place, and this frequently happens when the latter is getting short, and can ill be spared for the purpose. After trying several varieties of the broad-leaved kinds I have come to the conclusion that the improved round-leaved Batavian, when a good stock is obtained, cannot easily be beaten; but at the same time I would not advise anyone to abandon any other variety which may have given satisfaction, because results are not strictly uniform in the case of sorts growing under varying conditions. Of the moss and curled there are not such a large selection, and thus the choice can be more easily made.—W. S., *Wilts.*

CARNATIONS AT RANGEMORE.

EARLY one morning a young friend, yes, and an old friend too, started for Rangemore. It was by moonlight, but three hours later than we intended starting. I remarked while wending our way to the station, the moon looks cold, at which my companion laughed, for he has not been in the habit of watching the moon in the country. He will not forget his visit to Rangemore, for the day turned out piercingly cold, a biting wind and heavy snowstorm kept us company all day. In spite of the drawbacks of the weather we were abundantly rewarded by what we saw under the charge of Mr. Bennett.

It is not a description of Rangemore that I am about to write, for there is an enormous amount of glass. It is about the Carnations, which we went purposely to see. My friend had seen a noted collection a short time before, but the plants though good and numerous were small. What he saw at Rangemore he considered "giants for their age." This is perfectly correct, some of the plants, Malmaisons especially, are enormous. I have never before seen in the early days of January such a display of Carnations. These plants are never showy, but the house was perfectly gay.

When I last wrote of Carnations at Rangemore a fine span-roofed house, 80 feet long and 20 feet wide, was being erected for them. This had a division in the centre, and was full of plants flowering and coming into flower, one division being filled with what may be termed Tree varieties, and the other with pink Malmaisons—a very fine strain. The latter contained Princess May, flowering profusely; Churchwarden and other new kinds were represented, only one or two plants of the old flesh coloured being grown.

Instead of a description, I am going to point out how these grand plants are produced, and the management they receive. I am writing from memory, and if I should write anything that misrepresents Mr. Bennett's practice I hope he will put me right. The plants are raised by layering in low frames in July. At one time the strongest of one-year-old plants were selected for this purpose after producing one bloom. Now I believe the weakest are layered. The strong, healthy constit-

tion of the stock has been obtained by layering strong shoots only. Do not misunderstand me when I say the weakest are selected. The best plants are potted on, the others layered; none is weak, all are strong and even robust. After the layers are well rooted they are placed in 3-inch pots, kept close to the glass until they are well established and the pots fairly full of roots. Plenty of air is given to maintain sturdy growth.

From these pots the plants are transferred into 8-inch. A rather large shift some may say, and so I thought, and consequently placed mine of the same age into 6-inch. The results prove that Mr. Bennett is right, and for the future I shall work on the same principle. At this period of the year the plants look overpotted, and the apparently dry condition of the soil would certainly frighten some growers. When these healthy plants in 8-inch pots do start they develop wonderfully, and continue to do so through the flowering stage, while those in 6-inch pots are too full of roots, and are somewhat checked before the flowering stage is over. This is what I observed with my own plants last year. The specimens in 8-inch pots are arranged in span-roofed houses close to the glass as possible, and the pots sufficiently far apart so that they can be carefully examined for water.

Under these conditions the plants grow until they have flowered, the best being selected and placed into 10-inch pots. Those are the plants that flower in autumn, continuing throughout the winter and spring. As far as I can understand, they are kept the whole year under glass, and only shaded for a few hours daily during the very brightest sunshine. What are these plants in this size pot like? is only a fair question to ask. The foliage is of the darkest green, very glaucous, and wonderfully strong. The plants have from fifteen to twenty-two shoots—think of that, and little more than eighteen months from layering. They may be described as being 2 feet 6 inches high and 2 feet through them. They are, indeed, marvels of cultivation.

The syringe is not used in any stage of growth, but the most careful watering is practised. Those who had to grow hardwooded Heaths, or assisted in doing so, years ago, will know how these Carnations are watered when I say the principle might be described as the same, but for the benefit of younger gardeners I may say the dry appearance of the top of the soil is no guide, while the ringing of the pots is not merely followed. The pots are lifted principally to ascertain if they need water; in a word, an intermediate state for moisture, as far as possible, is aimed at. The plants are kept during the season of inactivity on the dry side. The soil looks dry, but it is never allowed to become destitute of moisture to injure the roots before water is applied. When they do need water a good soaking is given, not a mere dribble.

Ventilation is abundant at all times; no close confined atmosphere is maintained at Rangemore, and this is one of the secrets of success. On the day of my visit, in spite of keen frost and a biting wind, the flowering house had the side ventilators open about 2 inches on each side, and the temperature maintained was from 50° to 55°. The atmospheric conditions were such that these plants could grow slowly, but the growth made would be at the same time of the sturdiest description. Soft weak growth forced out by heat and a close confined atmosphere is detrimental to a healthy constitution, and means puny flowers, while the plants are a ready prey to disease—one cause, if not the main cause, of so many plants being diseased in the majority of gardens.

The soil I am not quite certain about, beyond good fibrous loam, which forms the principal, and coarse silver sand. Great care is also taken to free the loam from wireworm and other insect pests by stacking it in a position under cover for a time until it becomes thoroughly dried; when broken up water being used to once more render it in a suitable condition for moisture. The pots are carefully, even liberally drained, and the soil pressed firmly into the pots. No light material for potting is used, and loose potting is not practised.

Does Mr. Bennett feed these plants? Certainly, on the surface of the soil when in the 10-inch pots freely by the aid of artificial manure. I think I may safely mention the manure, although I always try to avoid doing this. Clay's is the kind used. To be successful no treatment must be followed that has a tendency to weaken the strength and vigour of the plants. These are the outlines of Mr. Bennett's treatment, and the result is no finer plants to be found anywhere, and the yield is abundance of large well-coloured flowers. How the tree varieties are treated shall be given another time.—WM. BARDNEY.

(To be continued.)

TREE PÆONIES.—Amateurs usually have a number of plants which grow to some little size, and which are known as tub-plants, that are easily transferred during the winter and yet form striking beds when placed in judicious situations on the lawns in the summertime. Oranges, Lemons, Hydrangeas, Oleanders, Yuccas, Pomegranates and other similar plants will readily come to the mind of the reader. One of the most desirable of this class of tub-plants is very rarely seen—namely, the Tree Pæony. As usually seen in gardens, they do not make much of a show, because it takes many years before they can grow to large specimens. Each shoot only makes two or three buds a year, and each of these buds will make a flower the year following; but, in five or ten years, a bush in flower presents a striking appearance. A large Tree Pæony is usually considered of great value. A ten or twelve year old plant would be worth nearly as many dollars as it had been years growing. It is a never ceasing object of growing interest.

THE YOUNG GARDENERS' DOMAIN.

THE R.H.S. EXAMINATION.

IN "A Student's" excellent advice given to young gardeners who wish to sit for the R.H.S. examination he says that "All candidates wishing to sit must send in their names to the Secretary not later than the first week in February." Is this not a mistake? I communicated with the Secretary some time ago and received a form in reply, which was to be filled in and returned not later than March 16th. If it is a mistake I think it advisable that it should be corrected, or many would-be examinees may give up the idea of sitting this year, being under the impression that they are too late.—W. R. R.

TESTING EARLY TOMATOES.

I SHOULD like to say a few words on the two following Tomatoes—namely, Sutton's Earliest of All and Frogmore Selected, which we grew side by side last season. The seed was sown singly in small pots the 9th of December, 1895, and placed in a house with the temperature of 50° to 55°. As soon as the plants appeared they were moved to another house with a temperature of 60°. There they remained on a shelf near the glass until the 22nd of January, when they were transferred to 5-inch pots. When almost touching the glass they were shifted into 12-inch pots. When about 4 feet 6 inches high they were topped, and also top-dressed with fresh soil, and eventually, when the pots were full of roots, supported by liquid manure. Sutton's Earliest of All ripened two days before Frogmore Selected, the first fruits being gathered on the 24th of April.—L.

"THE VICTORIAN ERA FUND."

MAY I be permitted a little space in the "Young Gardeners' Domain" to refer to the above subject? In the *Journal of Horticulture*, January 21st, I read with interest Mr. Veitch's appeal to all gardeners to help in raising a sum of £5000, "the income from which shall be devoted to affording temporary assistance to those applicants who are waiting to be placed on the pension list" of the "Gardeners' Royal Benevolent Institution." I should like to suggest to all "Bothyites" that each one give what he can, and let the foreman or someone who collects, send the full amount to Mr. H. J. Veitch. I think a good sum of money might be collected towards the fund by the young gardeners of Britain if they would combine for the purpose. I hope to collect and send a little from the bothy I am in at present.—YORKSHIREMAN.

[If every young gardener would give even a shilling it would amount to a goodly sum—a day's wage from gardeners, old and young—would make a noble contribution.]

AZALEAS.

AZALEAS, I think, will always be favourites, for scarcely another race of plants exists that produce such a quantity of flowers as these do when grown to perfection. Wherever a number of these plants are grown for conservatory or house decoration they give what is probably the finest display of blooms obtainable throughout the year. Azaleas are also most useful for cutting purposes, such as dinner table decorations or bouquets.

After the plants have done blooming, and all the withered flowers are cleared off, the younger plants should be repotted and then placed in a house with a temperature ranging between 50° to 60°, with plenty of air when the weather is favourable, syringing morning and evening. When they have finished their growth the temperature should be gradually lowered, until they can be removed out of doors to ripen the wood, but should be placed back in a cool house before the frost sets in.

The soil generally used in the gardens I have been in is this—namely, three parts of good fibrous peat, one part of light loam, one part of leaf mould, and one part of silver sand, with a light addition of artificial manure, such as Clay's or Thomson's. In draining the pots we had to be very careful, covering the bottoms nearly 4 inches.

Azaleas, if not kept well syringed, often cause trouble through attacks of thrips or green fly. These pests can be destroyed by fumigating with tobacco paper; but I think young gardeners ought to get the head ones to procure the XL fumigators, as I am one who does not like tobacco smoke.—W. L.

POTTING CATTLEYS.

(Continued from page 102.)

IF established plants were potted properly in the first instance very few will require pulling in pieces, but if through inattention the growths are near the edge of the pot, and the centre empty, they should be divided and put together properly. If the plants are well rooted the pots should be broken and the pieces picked away, but when they cannot be separated without injuring the roots they may be left on. If large crocks were used in the previous potting, two pieces of raffia tied around the ball so as to cross over the rhizomes and underneath the crocks will keep all in place, but if small crocks were used most of them will fall away, and it will injure the roots to fill them in again. With large plants it is advisable to measure the old ball with a stick and the inside of the pot as a guide to the depth of crocks will be wanted in the bottom to have the plant its proper height when in position. With the long potting stick the crocks can be worked into their places until the pot is filled to the required height, finishing with compost as advised for imported plants.

Cattleya Bowringiana should be potted a little higher than the others, as each growth it makes is lower than the previous one. This is the only variety I know that grows down to the soil except Cattleya citrina.

If these are potted in the same manner as other Cattleyas they make their growth lower each season, and turn their heads downwards, which is their nature. Some growers place them on rafts in their natural position. They should always be suspended from the roof, which is the best place for the choice varieties.—A SECOND OF THREE.

SINGLE DAHLIAS FROM SEED.

To obtain strong plants for autumn flowering seed should be sown now or before the middle of the month in a compost of loam, leaf mould, and sand, in rather deep pans, and placed in heat, about 60°. If the seed is good the seedlings will appear in about a fortnight. When large enough to handle they should be placed in 60-size pots, using the same compost as before. Place them on a shelf near the glass, shade from bright sunshine, and syringe to keep down green fly. As soon as the roots touch the sides of the pots the plants should be pinched. They will then soon push out three or more side shoots; they should then be shifted into 48-sized pots, this time adding a little more loam to the compost. They may be placed near the glass in a frame on a half-spent hotbed, shading a little at first, always using the syringe freely on closing the frame, and in due time top them again.

About the middle of April they will be ready for their final shift into 32-sized pots, some into larger, according to the size and strength of the plants, using a compost of three parts rough loam and one part spent Mushroom bed refuse, adding a good portion of sharp sand. Again place in a frame and keep close until growth has commenced, when air should be admitted through the day. Syringe and close the frame at night. Pinch them once more, gradually harden, finally removing the lights altogether.

By the middle of June the Dahlias will be ready to plant out. Place a little well decayed farmyard manure in the bottom of rather large holes, covering with soil, so that the roots do not come directly in contact with the manure. Press the soil firmly around, and support the plants with stakes. They yield abundance of beautiful flowers of various colours. These are very useful for house and table decoration, and especially church decoration, which is generally required about their time of flowering.—LEARNER.

CONSERVATORY MANAGEMENT.

(Continued from page 102.)

IN the general arrangement of the conservatory I do not favour borders along the centre of the house planted with Camellias, as is often the case. These "fixtures," if they may be so termed, from their occupying the position all the year round, appear somewhat stale, and interfere generally in the arranging of plants in pots to the best advantage. A house with a clear tiled floor is preferable to either planted borders or stages in the centre. Small borders may be formed round the sides in which to plant the climbers. These borders should be covered with clean sand, and plants may then be stood on them. Grouping is perhaps the most effectual way of arrangement for the centre of the house. Groups arranged lightly and tastefully are highly attractive.

In furnishing the conservatory it will be found advantageous to work on a system, having collections of well grown plants which will closely succeed each other in blooming. These collections will form a distinct feature at the different seasons of the year.

In January Camellias, Cytisus, Ericas, and Epacris will predominate; also Roman Hyacinths, Cyclamen and Primulas. Plants of Azalea mollis and Rhododendrons, which may be lifted from an outside border, should be put in heat. These soon expand their flowers and make a good show. Do not force too many at once, but keep a few back to occupy the places of the earlier ones. Dutch bulbs are very serviceable at this season, and no conservatory should be without them. Small quantities placed in heat at intervals of about three weeks will maintain an unbroken supply of bloom. A few Deutzias may also be put in gentle heat to be steadily coming on. Amcena Azaleas force well, and are also very useful. During this month the house should be kept at a temperature of 50° to 55° in the daytime without sun, allowing it to fall 5° or 10° in the night. Attention must be paid to ventilating on favourable occasions.

In February the conservatory will be gay with the same kind of plants as in the previous month, continuing into March, Cinerarias being the chief addition. These plants having been raised from seed sown in June, and having proper cultural treatment, should now be in full bloom. They will make very good substitutes for the Epacris, and many of the Heaths, which by this time will be ready for removal. The Epacris and Erica hyemalis should have their fading flower shoots pruned back to about an inch from the base, assigning the plants a light position in a cool house, but kept rather close until growth is a little advanced, when air may be freely admitted. A light dressing with Standen's manure will assist the plants in making growth. A few Hyacinth, Tulip, and Narcissus bulbs should be put in a cold frame in order to keep the flower spikes back as much as possible, and so prolong the supply. Shade them from the sun and admit air freely.

By the end of the month of March, or early in April, the Camellias and many of the forced plants will be ready for removal. Ghent Azaleas and Rhododendrons should be still kept in a little heat until growth is complete, when they may be again planted in an outside border. Camellias should also be placed in a warm house (an early vinery being very suitable), and liquid manure given to stimulate growth.

Having cleared all plants which are unfit for further use out of the conservatory, the climbers should next be attended to. Pick out all

dead leaves and cut away any dead wood. Those attacked by any insect pest should be cleaned and afterwards neatly tied. This work being completed the house should be cleaned before the succeeding plants are put in.—P. W.

(To be continued.)

VINES—STARTING TO FLOWERING.

AFTER the Vines have been pruned they should be untied and taken down from the wires that the house may be thoroughly cleaned. Soft-soap and hot water applied with a scrubbing brush is best for the woodwork, and clear warm water only for the glass. It is a good plan to peel the old loose bark from the Vines when cleaning them, as it harbours many insects. In doing this care must be taken not to injure the under bark. A solution of softsoap and hot water with a little petroleum added (a wineglassful to 2 gallons of water) forms a good mixture for washing the Vine rods. Be careful to clean out all holes and corners, especially around the spurs. This work cannot be too thoroughly performed, as if it is not well done much trouble and labour will be caused when the Vines are growing.

As soon as the house and Vines are finished attention should be directed to the borders. First remove the surface soil about 2 inches deep, to get rid of any insects that may have fallen from the rods during the cleaning of them. If plenty of roots are found a top-dressing of good loam with some bone dust added would be very beneficial. If no surface roots are visible, simply spread a little artificial manure on the border and dig it in lightly with a fork, stirring up the soil to the depth of 3 or 4 inches. To protect the outside border from frost and rains it should have a good covering of long stable litter.

Before starting a house examine the borders to ascertain if they are dry, and if such is found to be the case give them a good watering. In order to induce the Vines to break evenly, at the time of starting they should be bent in a semicircular form, and tied along the front of the house. By doing this part of the sap is directed to the back buds instead of its rushing to the top of the Vine, which would happen if they were tied up perpendicularly.

The treatment of forced Vines depends a great deal upon the time of the year they are started. Those started in November or December would require longer to mature their crops than others started in January and February, as naturally they would not grow so quickly during the dull, dark days of winter.

I will take as an example a vinery from which Grapes are to be cut by the end of April. A period of about six months is necessary to produce ripe fruit for that season. A start, therefore, should be made early in November. Little or no fire heat will be required to maintain a night temperature of 48°, which is sufficient to begin with. In dull, cold weather keep the day temperature about 58°. With sun heat the thermometer may be allowed to rise to 65° before giving air. To produce a moist atmosphere the house must be damped down and the Vines syringed several times a day, according to the state of the weather.

After a month has passed increase the night temperature to 55°, and allow a corresponding rise during the day. In a month or five weeks from the time of starting, the buds will show signs of bursting. When the shoots are 2 or 3 inches long the Vines should be tied to the wires, but leave the ends loose and hanging down for some time longer to still act as a partial check to the rising sap. The young growths quickly increase in size and strength now they have more light and room. They will soon need tying down to the trellis to keep them in place and away from the glass. By the end of December the Vines should have made good progress, and a temperature of 60° at night, rising to 75° by day, will not be too hot for them. The syringe requires careful usage at this stage, as the young shoots are very tender and easily broken.

It is seldom that much disbudding is necessary in the case of early forced Vines. The shoots bearing the best bunches must, of course, be retained, and all weak and superfluous ones removed. When three leaves have been made beyond the bunch it is usual to pinch the shoot at the first or second leaf, but this and stopping of laterals will depend upon the space to be covered. The foliage must not be crowded, or it will become stunted and unable to properly develop.

Towards the end of January or the beginning of February the Vines will be in flower. During this period a dry buoyant atmosphere should be maintained with a night temperature of 67°, rising to 80° by day with sun heat. It will considerably help the setting of the flowers if the Vines are shaken every day in order to distribute the pollen. A camel-hair brush is generally used to fertilise the flowers of some varieties deficient in pollen.

I have not yet made mention of the insect and other pests which often attack Vines during their growth. Those most generally met with are the red spider, mildew, thrips, and mealy bug. The first-mentioned is often produced by keeping the atmosphere of the house too hot and dry. As a preventive endeavour to produce the opposite state of affairs by well syringing and damping, especially near the hot-water pipes. As a remedy dissolve half a pound of softsoap in 3 gallons of water, together with a handful of sulphur, and well syringe the infested parts with the mixture. This treatment is also effective for destroying thrips.

Mildew is a very troublesome pest, and if allowed to spread greatly disfigures both the Vine and its fruit. Cold draughts and low temperatures are the chief factors in its origin. Sulphur is the best known remedy. There are various methods of applying it. Flowers of sulphur may be dusted on the leaves and bunches, or made into a paste and smeared on the pipes. These, however, must not be overheated, or the

hot sulphurous fumes resulting would cause serious damage to the fruit and foliage.

Mealy bug is difficult to eradicate when it is once established in a vinery. As I before mentioned, the old bark should be peeled off and the Vine washed with a solution of softsoap and hot water, adding a little petroleum. Many of the insects may be caught when the Vines are moving, if we are on the alert, with a brush dipped in petroleum.—H. H.

[Setting and thinning Grapes next. Can any of our probationers send sketches of properly and improperly thinned bunches of Grapes?]

SOLANDRA GRANDIFLORA.

To convey an idea to "A. P." we give herewith an illustration (fig. 29) of this plant, which is rarely met with. This is not, however, because it is not beautiful, but rather that it is somewhat shy in producing its



FIG. 29.—SOLANDRA GRANDIFLORA.

flowers. Besides the flowers being strikingly attractive by their Brugmansia-like form and pale yellow colour, the foliage is also agreeable, and the plant is worthy of being cultivated by amateurs in their stoves. The plant is propagated from cuttings, which should be grown in loam and peat in a brisk heat and with liberal supplies of water until it has attained a good size. Water should then be gradually withheld until the leaves wither and drop off by drought, and the plant will seldom refuse to flower profusely. It is a free-growing plant and a native of Jamaica, thus requiring heat to grow it, yet a distinct season of drought and rest to induce the production of its beautiful flowers.



HARDY FRUIT GARDEN.

Planting Fruit Trees and Bushes.—Fruit trees of varied forms and sizes, also small bush fruits, may still be planted. Choose the driest periods which occur in the course of the present and succeeding month. They will succeed well if planting is carefully carried out, presuming that due attention is given to the preliminary details regarding the soil and the treatment of the trees. The demands of the trees in lifting and replanting should be carefully studied, so as to avoid checks to the future growth. The most important matter, and one that is frequently overlooked, is to prevent the roots becoming dried by cold parching winds, or lying exposed to the sun.

Preparing Ground.—The position for planting is best if previously prepared in autumn by deep digging or trenching, in order that the soil, if light and rich, may have become consolidated. Firm ground suits fruit trees better than soil lying very light and open in texture. Autumn preparation is strongly recommended for heavy retentive soil. It absolutely requires a period of exposure to atmospheric influences. This is best secured by thoroughly breaking up the soil and subsoil, allowing frost, rain, wind, and the changes of temperature to act beneficially upon it. In spring, as soon as the surface dries sufficiently, forking it over will render it more workable and suitable for planting. When it is necessary to prepare the soil and plant shortly after, the site chosen should be neither light nor heavy, but fertile soil of a medium texture. In some cases the ground needs but little preparation, the high cultivation accorded to a preceding crop having brought it into a desirable condition, a level surface only being required.

Excavations for Planting.—After the space has been marked out, and the positions for planting indicated, excavations for the roots should be prepared. They must be wide, in accordance with the length of the roots. Comparatively shallow holes are required, or of a depth that the bole of the trees when planted will be no lower in the soil than before, as indicated by the earth marks on the stems.

Character of Trees.—The most suitable trees for planting now or at other times are those furnished with abundance of fibrous roots. Strong roots bare of fibres ought not to predominate. They are not so essential as a more plentiful supply of the weaker roots which have numerous rootlets attached. The latter more readily take hold of the soil, thus rendering the trees or bushes more quickly established.

Treatment of the Roots.—The transference of young trees from one part of a garden to another does not cause much mutilation of the roots if extra care is taken in lifting, so that plenty of soil adheres. The work can be done expeditiously, so that the roots are not dried. The treatment of trees received from nurseries depends on the method of packing. The best firms pack the roots carefully. All they require is to cut smoothly the bruised and broken ends after unpacking, and lay the trees in quickly in moist soil until they can be finally planted. Trees that have very dry roots from any cause should be immersed in water to assist in freshening the flaccid tissues. Roughly dug up specimens have many broken and injured roots, which should be cut smoothly above the points where damaged. Cleanly pruned roots sooner push forth new additions, which in their turn originate young fibres.

Planting.—The disposal of the roots in the soil is of importance to encourage a good start. Spread them as much as possible horizontally with layers of soil between, not crowding them in a mass or fixing them in a vertical direction. Place the trees on a slightly convex-shaped mound. Employ the best of the soil for spreading among the roots. Suitable material may be made by crushing it moderately fine and intermixing with a proportion of wood ashes or burnt refuse.

Pruning.—Shortening the branches is most essential with young trees, and when the roots are few. A tree with few roots cannot support the first season long branches, causing every bud to start. Such as these should be shortened considerably so as to promote free growth. Trees not having a requisite number of branches must be cut closely back to obtain them in the desired positions. Well rooted trees do not receive severe checks in planting, and these need less shortening with the exception of those being incompletely furnished with branches. Apples and Pears having the terminal bud of any leading branch, a flower bud must have such pruned back to a wood bud, so that the extension of growth may continue. A suitable time to prune is when the buds commence to swell.

Staking and Mulching.—All trees which cannot resist being moved by wind must be secured with stakes and ties, not injuring the bark. Complete the work by mulching the surface with partially decayed manure as far as the roots extend.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest House.*—The weather on the whole since the turn of the days has been fairly favourable for forcing operations, and where proper attention has been given to ventilation, fertilising the flowers, and the maintenance of a suitable temperature the set of fruit is satisfactory. Any varieties still in flower should have the blossoms brushed over daily with a feather, though shaking the

trellis answers in many cases, especially when the house is kept rather dry. When the flowers fade a moderate syringing with water of the same temperature as the house will assist in bringing off the remains of the petals.

Avoid undue haste in the forcing, for success depends on sure, steady progress. Disbud cautiously, commencing with the foreright shoots first, following from the upper and upright parts of the tree downwards to the horizontal branches at the base. Shorten any bearing growths left full length in pruning to a growing bud on a level with or above the fruit. Fumigate on the first appearance of aphides, but not whilst the trees are in flower, and be careful not to give too much, as the foliage and fruit are very susceptible of injury. Keep the surfaces near the hot-water pipes moistened as they become dry, and supply water or liquid manure to the border as required. A few sweetened horse droppings may occasionally be sprinkled on the border for giving off ammonia, acting as a check to red spider, and supplying nourishment to the roots; but avoid heavy mulching, as this encourages wood growth at the expense of the fruit, and must not be given until the stoning process is completed.

Maintain a day temperature of 55° artificially, 50° at night, and 60° to 65° by day, with a little ventilation and gleams of sun, ventilating fully above 65°, being careful to avoid cold currents, and close sufficiently early to raise the temperature 10° from sun heat above the ordinary temperature.

Succession Houses.—Trees started at the new year have the flowers expanded, and will need but moderate atmospheric moisture, syringing the trees being discontinued; damp the paths and borders occasionally to secure a genial condition of the atmosphere. Trees started with the current month should be syringed until the blossoms commence opening, and where the buds are thick remove those on the under side of the trellises. Before the flowers expand it is a good practice to fumigate the house on a calm afternoon, when the trees are dry, to destroy any aphides that may exist, and so keep the trees free from these pests until the fruits are set. Inside borders must not lack moisture; therefore, if there is any doubt on this point make an examination, and give a thorough supply of water or liquid manure if the trees are enfeebled by repeated forcing or need succour.

Late Houses.—The blossoms in these have been kept back by the weather, and are generally in a healthy condition. Where the lights have been removed they need not be replaced until the time for starting the trees or the blossom buds are advanced in swelling, and it is not safe to longer expose them. Trees under fixed roofs must have the inside borders kept moist and freely ventilated, so as to keep the trees in good condition for giving full crops of fruit. Lifting and re-arranging trees in late houses may still be proceeded with, bringing such operations to a close as soon as possible, yet avoid working about trees and in borders in bad weather, for it only converts the soil into mud, and it bakes and cracks afterwards, forming an impermeable mass, or letting the water through it by the fissures.

Vines.—*Earliest Forced in Pots.*—Where the bunches are properly thinned, and not too many retained, the Vines will push laterals, but if overburdened with fruit they come to a standstill, and the fruit suffers more or less, therefore aid such Vines by a careful cutting-out of the eyes in the axils of the leaves below the bunch on each shoot, taking care not to injure the leaves. This will assist the Grapes in swelling, and may cause the shoots to push laterals above or on a level with the fruit. The laterals beyond the bunches will require pinching at every joint where the space is limited, rubbing off those below them; but where there is room those in advance of the fruit may be allowed more freedom, tying them down to the trellis.

Top-dress the soil with freshly cut turf, but the grass reduced in lumps the size of a hen's egg and sweetened horse droppings in equal proportions, adding to every bushel a pint each of soot and bone superphosphate, with a quart of wood ashes, mixing well. To maintain the top-dressing in position peg with galvanised wire reversed curves around the rim, thus forming a receptacle for the top-dressing. If the pots are standing on loose brick pedestals and fermenting materials are placed around the pots the roots will extend over the rims, and being fed with liquid manure the fruit will be finer in proportion.

Early Forced Planted-out Vines.—Stopping, tying, and thinning must have needful attention, removing surplus bunches before they have time to rob the Vines, for that prejudices the current and next year's crop. A judicious thinning of the bunches does not always mean a corresponding reduction in weight when the Grapes are ripe, and it invariably tends to good finish. Let the laterals extend as much above the bunches as the space warrants, but not allowing more leaves to be made than can be duly exposed to light, making allowance for an increase of growth through stopping. Liquid manure in a weak and tepid state may be given to inside borders; mulch with short sweetened manure from the stables, but avoid excessive quantities, as too much ammonia is prejudicial, whilst a little benefits the Vines.

Damp the house in the morning, and at closing time or early in the afternoon, ventilating a little between 70° and 75°, and keeping through the day at 80° to 85° from sun heat. Close so as to maintain that temperature, or run up to 90°, the heat at night falling to 65° or 60° in the morning of cold nights, maintaining 70° to 75° by day artificially, or 5° less if cold and dull.

Early Muscat House.—To have Muscat of Alexandria ripe in June, which is as soon as this variety may be depended on, the Vines require to be started about the middle of December, and to be brought on steadily, as in a close and moist atmosphere the foliage becomes very

thin and liable to scorch. The bunches are now approaching the flowering stage, and should have a night temperature of 65° to 70°, with a rise of 10° to 15° by day, closing for the day between 80° and 85° when bright weather prevails.

When the bunches are in flower they should be carefully fertilised, brushing over every bunch with a camel-hair brush when the caps are being thrown off, following with pollen from a free-setting variety, such as Black Hamburgh; then a good set may be expected. Madresfield Court requires similar attention, and ripens earlier and in a lower temperature than is required for Muscat of Alexandria, which requires some time in ripening, and to have the roots in a warm inside border. This may be mulched after the Grapes are set with lumpy material, through which air and water can pass freely.

Succession Houses.—Commence disbudding after the bunches show in the points of the shoots, tying the growths down before they touch the glass, stopping the bearing shoots a couple of joints beyond the fruit, and pinch the laterals below the bunch at the first leaf, and above allow them to extend, but only to cover space with foliage fully exposed to light. Remove all surplus bunches before they flower, and maintain a moderate amount of moisture, even after commencing to flower, and secure this by damping occasionally, maintaining a night temperature of 65° to 70° at that time, and 70° to 75° by day artificially, with a gentle circulation of air. If there is any lack of moisture in the borders give a thorough supply before the flowers open, but avoid making the soil sodden, as this is not favourable to setting, and often leads to shanking.

Houses to Afford Ripe Grapes in July.—In these the Vines must now be started, watering the inside border with tepid water to render it evenly moist, but an excessively wet condition retards root action, and is often followed by various prejudicial consequences, therefore a somewhat dry is better than a wet soil at the commencement. Weakly Vines may be supplied with liquid manure. Damp the rods two or three times a day, and maintain a temperature of 50° at night, 55° by day, advancing to 65° from sun heat.

Late Houses.—The Vines having been cleared of the Grapes early in January or before, pruned, and the inside border top-dressed with fresh loam, with a pint of dissolved bones and a quart of wood ashes to every bushel of loam, and the house kept cool so as to insure rest, a good or needful supply of water should be given, and a start made without much further delay, as it is essential to the Grapes keeping well that they be thoroughly ripened by the middle of September. Depress strong rods and young canes to a horizontal position or lower, and seek an even breaking of the buds by syringing the Vines two or three times a day. Keep the temperature at 55° at night, and 60° to 65° or more by day from sun heat, but ventilate freely at and above 65°.

THE FLOWER GARDEN.

Heliotropes, Fuchsias, and Abutilons.—Old plants of Heliotropes ought now to be topped and placed in heat, the side shoots from these being struck as fast as they form. A few Fuchsias, if young plants are required, to be similarly treated, but the bulk of old plants ought still to be resting in greenhouses or other cool quarters, April being quite soon enough to start these. Young shoots of variegated Abutilons taken off with a heel of old wood strike readily in heat, and in order to have plenty of these very effective bedding plants, lightly prune what stock plants there are in pots and start them in heat.

Verbenas and Lantanas.—Stock plants of ordinary Verbenas now in small pots and cool quarters should have a shift and be placed in heat. Keep them well away from the hot-water pipes, and free of other insect-infested plants, and a capital lot of sappy sure striking cuttings will then be obtained. *Verbena venosa* is best propagated by means of root cuttings. Cut the fleshy roots into 2-inch lengths, dibble these in rather thickly into boxes or pans, the topmost joint not being deeply buried, and place in brisk heat. There will soon be plenty of well-rooted plants ready for boxing off. Both kinds of Verbenas may be raised from seed, mixed beds of seedlings being very effective. Sow in pans at once, cover with squares of glass, and keep in moist heat till the seedlings appear. Sometimes the seed germinates very quickly, while not unfrequently it is several weeks before it does so. Lantanas may be raised from cuttings or seed exactly as advised in the case of Verbenas.

Koniga variegata and Lobelia.—Plants of the Koniga should be placed in heat, and the cuttings struck as fast as they can be obtained. If dwarf Lobelias are to be raised, either by division or cuttings, keep the stock plants on a warm greenhouse shelf. Subjected to a strong heat the tops soon become hard and develop into flower heads. Directly the shoots emit roots just above the soil division should take place, every partially rooted piece duly topped soon becoming a strong plant. Only sappy shoots are of any use for making into cuttings.

Polemonium caeruleum.—The variegated form of this plant now in frames or other cool quarters will soon commence to emit roots from the short stems, either buried or just above the surface of the soil, and then will be the time to divide them into as many pieces as there are crowns. Place them singly and rather deeply into 3-inch or slightly larger pots, but still keep them in a cool pit or frame, this plant being most impatient of heat, and also of drought.

Miscellaneous Plants.—Seeds of *Acacia lophantha* should be treated similarly to Cannas, and neat little plants may be obtained this spring. The seed of the Coral plant (*Erythrina crista-galli*) is equally hard, and this, too, should be soaked in fairly hot water till it has softened and swollen considerably, being then sown in previously warmed soil, and given the benefit of brisk bottom heat. *Grevillea robusta* seed

does not require soaking, but should be sown in a pan, covered lightly with fine soil, and kept plunged in a hotbed till it germinates. The quality of the seed varies considerably, sometimes germinating quickly, at others either failing to do so, or refusing altogether. Plants raised last year would be the most effective in the flower garden.

THE BEE-KEEPER.

SEASONABLE NOTES.

THE WEATHER.

NEARLY three weeks of real wintry weather has been the means of confining the bees to their homes. In some instances the snow drifted, nearly burying the hives, and as a thaw appeared likely the snow was all cleared from them. No appearance of life was visible, the bees being snugly clustered amidst ample stores. But what a difference could be observed in the temperature of a hive containing a strong colony of bees and an empty hive. In the former the entrance was open its full width, but no snow remained for the space of several inches, owing to the warmth from the hive causing the snow to melt as it fell.

With the empty hive the case was quite different, all the snow remained close to the entrance, showing that although the heat from the inhabited hive was not perceptible to an ordinary observer, the melted snow gave sufficient proof that there is considerable warmth in a cluster of bees during severe weather. If they were examined at this stage the bees would be found in a state of stupor; there is, however, sufficient life in them to obtain food from their sealed-up stores. They are constantly on the move. Those inside the cluster obtain extra warmth, which enables them to take the necessary food. They then return to the outside of the cluster, and so the remainder feed themselves in turn.

With a change in the temperature the cluster gradually expands, and the first fine day that comes, if genial and bright, the bees will be merrily on the wing, in marked contrast to their comatose condition of only a few days before.

There is now (February 5th) several inches of snow on the level, but as there is a steady downpour of rain it will doubtless soon disappear. Already nearly 2 inches of rainfall have been registered this month; this has been chiefly snow. Frost and snow coming at this season will have a beneficial effect, as it will be the means of retarding vegetation, and warm weather is more likely to come when required for honey production. May the Queen's Diamond Jubilee year be as successful, from a bee-keeper's point of view, as the Golden Jubilee was ten years ago.

ENEMIES OF BEES.

These have been very destructive during the past month, the chief culprit being the great tit (*Parus major*), destroying great numbers of bees. If these pests were satisfied with only the dead bees that are cast out of the hives I would not interfere with them, as they destroy numerous insects; but when a dozen or two take up their abode in close proximity to the apiary they will soon clear off all stray bees which are bold enough to leave their hives on mild days at this season.

If the bees will not leave their hive of their own free will the tits are most persistent at tapping at the entrances to tempt the bees to come out. Directly they make their appearance they are seized and taken to the nearest tree to be dissected. They are not consumed bodily, but the head, wings, and sting is carefully removed, and the dainty morsel that remains is evidently much enjoyed. These birds are ever on the alert, and should be destroyed when observed to be doing damage in the apiary.

When the ground is covered with snow it is easy to see the mischief that is going on by observing the numerous fragments of bees lying about. The birds are not difficult to secure by using a spring mouse trap baited with bread or a small piece of suet. If a few of these traps are kept constantly set, and dotted about amongst the hives, it will be the means of saving many bees that would otherwise be lost.

Mice, too, are very troublesome, and if they once gain access to a hive will soon clear out the contents, and the bees not being able to protect themselves at this season will die of starvation if steps are not taken to clear off these pests. Mice will travel long distances for food, and by having traps constantly baited in readiness for them may often be destroyed before they have the opportunity of doing any mischief.

MAKING CANDY.

As some readers have found a difficulty in making soft candy for feeding such stocks as may be short of stores at midwinter and

early spring, I will state as briefly as possible how to carry it out with success. Into a brass preserving pan, or enamelled iron one, put 6 lbs. of sugar (fine granulated), one pint of water, and one teaspoonful of cream of tartar. Set on a brisk fire, stirring constantly to prevent burning until it comes to the boil. Withdraw slightly from the fire to prevent boiling over until the mass begins to settle down to boil, which is readily known by the frothiness leaving it. Have ready a teacup of cold water, and with a teaspoon lift out a little syrup and drop into the water. If it lie at the bottom of the teacup so as to lift like very thick paste or putty, it is just right and ready to be removed from the fire. If too much boiled the syrup will be hard and crisp in the water. This can be remedied by adding a little water to the syrup after it has been taken from the fire. Two minutes' boiling is sufficient for the above quantity. The pan should then be placed in cold water to hasten the cooling process. Stir the mass constantly until it begins to get greasy looking, gradually getting whiter and stiffer. It should then be poured into shallow dishes and allowed to cool. The result will be a fine-grained, moist, soft candy, which will be taken readily by the bees. With a little practice anyone may soon become an adept at making it.—AN ENGLISH BEE-KEEPER.

DOUBLING HIVES.

"AN ENGLISH BEE-KEEPER" says that twelve frames 20 inches by $8\frac{1}{2}$ are not so large as the hive I condemn when doubled. Did I say it was? Certainly not. My question at the first was, Is a hive with ten standard frames large enough for the requirements of a prolific queen laying from 3000 to 4000 eggs in the height of the season? Let us look at the hive pure and simple, not only for the summer, but for the whole year. When hives are doubled it cannot be called the produce of one hive, for we have the progeny of two queens—one hive robbed to make another strong.

My contention is that even with the doubling system the queen has not room at the right time. I maintain if the queen has room for her laying powers previous to the honey flow, say 12th of June, we should have hives that need no doubling supposing the season is suitable; besides, with the doubling system we need more hives. I prefer nucleus hives for queen rearing say we want about thirty young queens.

Again, "AN E. B." says "G. H." cannot be serious when he assumes that it was owing to the hive having standard frames in the same apiary as the above—twelve frames 20 inches by $8\frac{1}{2}$ —that no surplus was stored. Yes, I was serious. The experiment was carried out by Mr. Hall of Welham Bridge on several hives in his apiary. Had not the test been with one or two hives there might have been room for doubt. The test was so marked in favour of the large brood nests that Mr. Hall has sold all his hives with ten standard frames, and such has been my experience with large hives. This summer about twenty-five large hives in this district will be tested by more than a hundred hives with standard frames, and all being well the readers of this Journal shall know the result.—GEORGE HOWDENSHERE.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Propagating *Cryptomeria elegans* (Kenley).—There are two methods. 1, Of cuttings when half ripe, placed in sandy soil and under glass, keeping rather close until rooted. 2, By cuttings of ripe shoots taken with a heel in autumn (October or November), inserting in sandy soil under a hand-light, or inserting in pots and keeping over the winter in cool quarters, but safe from frost, and in spring when a callus has been formed placing in gentle heat, so as to promote the formation of roots. Some, however, prefer to insert the cuttings in August or September under a hand-light, and root entirely under cool treatment.

Soil of Pasture Land (G. F.).—The soil taken 6 inches from the surface is a good rather unctuous loam, and we should consider it to have plenty of body—that is, naturally of considerable fertility, and holding what may be supplied, so that it would not be an expensive soil as regards fertilisers. Two to 3 feet depth of such soil, resting on 4 feet of gravel, and that on clay, would answer well for Grape, Tomato, and Cucumber growing, as it will be naturally well drained. This, however, is matter for consideration on the spot, as also is the aspect and other details that must have due weight in deciding. The turfy top spit we should consider very suitable for Grapes and Cucumbers, but would probably need some opening material, as it seems of a moisture-holding nature, there not being much grit in the sample. There would not be any harm in having an analysis, but it is in most cases only money wasted, as staple and other considerations are of more importance from a practical point of view. Could you not get the opinion of a grower in your locality?

Potatoes Diseased (J. G.).—The Potatoes are infested by the American scab fungus, *Oospora scabies*, a very malignant form, which causes the Potatoes to not only "scab" but turn black and decay, in that respect differing from the English scab, which, though a disfigurement, is evidence of good using quality—i.e., mealiness. We have known the American scab for over twenty years. It is the most virulent in heavy soils or those surcharged with much organic matter, such as very heavy manuring. The best application to the land for it is the lime dressing advised in the reply to "Young Head," with about 10 cwt. per acre of gypsum (sulphate of lime), as the fungus does not like sulphur, besides the dressing corrects the sourness or salinity of the soil. The "sets" should be disinfected before planting, dissolving 1 oz. corrosive sublimate (a virulent poison, which must not be handled in the pure state) by placing it in a wooden (not metal) vessel, and pouring on a gallon of hot water, leaving overnight. In the morning add $6\frac{1}{2}$ gallons of water, or rather have this quantity of water in a wooden vessel, and pour in the 1 gallon solution, allowing to stand four or five hours, stirring several times during that time to insure an even solution. In this immerse the seed Potatoes, washed of dirt, for $1\frac{1}{2}$ hour, then remove and dry. The solution will answer so long as it lasts for more Potatoes. They are easily immersed by placing in a coarse sack. It will not injure the hands when fully diluted, but it must not be taken into the stomach, therefore all treated Potatoes must be planted or destroyed.

Preparing Soil of Tomato House for Planting Vines (J. G. B.).—There is nothing better for mixing with the soil deficient in organic matter than good London manure, which, as you no doubt know, is chiefly that of stables. This, in the case of a light soil, may be used to the extent of one-fifth of the soil moved or employed. As you have 2 feet depth of soil you would require to put on a thickness of 6 inches, then, taking out a trench at one end, turn over the soil and mix the manure with it as evenly as possible, taking small spits and intermixing as well and evenly as practicable. We should do that before adding any fertiliser, letting the soil rest a few days, as you will get a sort of fermentation, though not a perceptible one, that will do much to get the manurial matter diffused. Then you may use a mixture of fish meal, 7 parts; dissolved raw bones, dry and crumbling, $3\frac{1}{2}$ parts; and double sulphate of potash and magnesia, $3\frac{1}{2}$ parts; mix, and apply $\frac{1}{2}$ lb. per square yard. Then turn over the whole border, as a bricklayer's labourer does lime and sand for making mortar, so as to get an even blending of the manure and the other material with the soil. Before planting you may use another $\frac{1}{2}$ lb. of the mixture per square yard, and point this into the soil with an ordinary digging fork, taking small spits and not going deeply. This has given excellent results on soil of a rather light character. The fish meal should be "white fish," and the double sulphate of potash and magnesia guaranteed to contain 48 to 52 per cent. of sulphate of potash and 25 to 30 per cent. of sulphate of magnesia, while the dissolved bones should contain 15 per cent. soluble and 23 per cent. insoluble phosphate.

Insects in Soil (Young Head).—The "insects" are the snake centipede (*Geophilus longicornis*, Leach). It is not an insect, but belongs to the Myriapoda, section Chilopoda, family Scolopendridæ, tribe Geophilidæ. It has a mouth provided with foot jaws, and is carnivorous, harmless, and useful by devouring "springtails," especially *Lipura fimetaria*, which is a vegetable feeder, making holes in Potatoes, and often ruining vegetable crops of all kinds, though it be but one-tenth inch in length. The snake centipede is very common in Britain. It is like a long yellowish or whitish thread, a couple of inches or more in length, with a great number of feet on each side. It has no eyes, but moves along with an undulating and sinuous motion. The female sits upon her eggs, coiling herself round them in a little cell which she makes in the ground, and never leaves them until they are hatched, the period of incubation being a fortnight to three weeks. You could not do better than use the lime, 10 tons per acre in your case would not be too much; the lime being freshly burned, placed in little heaps convenient for spreading, and when fallen, yet whilst hot and floury, spreading. This is best done in a dry time, or when the land is in good working order, as it should be dug in shortly afterwards with a fork, taking small spits so as to incorporate well with the soil. This will be all that is required, as the land having been heavily manured will not need enrichment, and it would be better to avoid the horse manure for a time, or only use it as a mulch in summer for such crops as Peas, Runner Beans, and others to prevent the soil cracking. A moderate use of coal ashes would be useful in rendering the soil more open and better to work.

Fancy Pansy Miss Paterson Diseased (*J. W.*).—The specimen arrived in a shrivelled condition, the moss, instead of having been damp, being as "dry as dust." The leaves are infested with the Violet rust fungus (*Peronospora violæ*), which appears as small rounded brown spots, and causes the leaf to wither and die. It is generally supposed to be induced by keeping the plants too close and moist, which promotes a weakened and soft growth, air being one of the best preventives, with no more water than sufficient to keep the plants fresh. The advice commonly given is "burn all infested plants, and do not use the same soil again for *Violacæ*," is excellent, no doubt. We have found dusting with air-slaked lime, dry and floury, very useful, giving some air constantly, or when not frosty; while the advertised fungicides in powder containing sulphate of copper are efficacious preventives, and prevent the disease spreading.

Basic Slag Phosphate for Vines (*S.*).—It is a good manure for Vine borders, especially when rather strong or close from being heavily dressed with manure or even liquid manure from stables. It is best applied in the autumn, but may be used now, sprinkling half a pound on each square yard and pointing in lightly with a fork, not damaging the roots. It is best applied along with double sulphate of potash and magnesia, using of this 4 ozs. per square yard, and pointing into the soil with the basic cinder phosphate. The foregoing are maximum quantities to use. Ordinarily half quantity suffices, and is better when the roots are near the surface, following in the spring, when the buds begin to swell, with a mixture of bone superphosphate, three parts; powdered saltpetre, one part; and ground gypsum, one part, mixed, using 4 ozs. per square yard, and a similar amount when the Grapes are thinned, washing in moderately.

Preparing Material for Mushroom Beds (*N. O. P.*).—Yes, there is great danger of the material becoming too spent before making up when the manure has lain for some time, and had what may be termed an extra "sweating" before taken in hand by the Mushroom grower. This is a matter upon which growers must exercise judgment, for it is absolutely necessary that the material when made into beds have plenty of "life" in it so as to retain its warmth over a considerable period, slowly decomposing and affording food for the Mushroom mycelium. The plan you propose would be likely to answer in your case better than so much turning at more distant intervals; but the thing is to sweeten the material, and so secure steady and prolonged warmth without overheating in the first instance, for when this dries the material too much the "spawn" cannot run in it, though even that is better than "dead" material, rotten and wet. We have often used manure from stables after removing the long litter, throwing in a heap to get warm, and turning twice at intervals of three or four days, and had excellent crops. Overspent manure is worthless, hence the necessity of exercising discriminative judgment. The evil of over-exhaustion of manure is forcibly pointed out in pp. 25 and 26 of "Mushrooms for the Million," the late Mr. Gibert's remarks being cited:—"To gather droppings, lay them in a shed, dry them, and turn them till there is no strength in them, and then expect Mushrooms, is to me something like madness."

Ivy on Old Plane Tree Stem (*G. B. T.*).—As the old Plane tree is 70 feet high and still vigorous (not decaying materially), the Ivy clinging round its stem would, to some extent, affect the life of the tree, as it does all trees; but, as stated in our reply last week (page 106), is far more prejudicial, for obvious reasons, to young and growing trees than to those arrived at full growth. In the case of developed yet healthy trees Ivy on the stems (not crowding the heads) does not appear to be appreciably injurious, while in the estimation of many persons it adds to their beauty. The matter is one of taste. Some persons would prefer the old Plane tree without the Ivy, when the tree might be expected to live longer. We give the two views to assist you in deciding as to which you would prefer. Ivy on young trees prevents their attaining full development, or as much as they would without it, and causes premature senility. On old trees it hastens their decline, especially when outgrowing them. If you desire to preserve the Plane tree as long as possible cut the Ivy off at the ground, severing its stem or stems, but making sure not to injure the Plane tree, and leave the Ivy to die before withdrawing it from the trunk. Thus, if cut now, leave the Ivy until summer when the Plane tree is in full leaf, then there will neither be danger of its being chilled, as it would if removed, nor of sun-burning if suddenly taken away in summer. The root-stems of the Ivy should also be carefully removed, otherwise they would perhaps grow again.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*D. L.*).—*Eupatorium riparium*. (*G. H. L.*).—1, *Cœlogyne ocellata*; 2, *C. cristata*. (*J. G. R.*).—*Physalis Alkekengi*. (*A. B. C.*).—All the Ferns were dead; the *Cypripedium* is a form of *Harrisianum*. (*N. A.*).—1, *Asplenium bulbiferum*; 2, *Davallia canariensis*; 2, *Nephrolepis exaltata*; 4, *Adiantum capillus Veneris*; 5, *Asplenium nigrum*; 6, *Adiantum trapeziforme*. (*P. C.*).—1, *Cupressus Lawsoniana*; 2, *Abies Douglasi*; 3, *Cryptomeria elegans*; 4, *Thuopsis dolabrata*. (*W. B.*).—Varieties of *Primula sinensis* are florists' flowers that can only be named by comparison.

TRADE CATALOGUES RECEIVED.

Dickson, Brown, & Tait, Corporation Street, Manchester.—*Farm Seeds*.

Pater Henderson & Co., 35, Cortlandt Street, New York.—*Manual of Everything for the Garden*.

J. R. Pearson & Sons, Chilwell, Notts.—*Zonal Pelargoniums*

J. Yate, Little Underbank, Stockport.—*Seeds*.

COVENT GARDEN MARKET.—FEBRUARY 10TH.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	1	3 to 2	Lemons, case	11	0 to 14
Filberts and Oobs, per 100lb.	45	0 50	Plums, $\frac{1}{2}$ sieve	0	0 0
Grapes, per lb.	1	3 2	St. Michael Pines, each ..	3	0 8

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100	0	0 to 0	Mustard and Cress, punnet	0	2 to 0
Beans, $\frac{1}{2}$ sieve	0	0 0	Onions, bushel	3	6 4
Beet, Red, dozen	1	0 0	Parsley, dozen bunches ..	2	0 2
Carrots, bunch	0	3 0	Parsnips, dozen	1	0 0
Cauliflowers, dozen	2	0 3	Potatoes, per cwt.	2	0 4
Celery, bundle	1	0 0	Salsafy, bundle	1	0 1
Coleworts, dozen bunches	2	0 4	Seakale, per basket	1	6 1
Cucumbers	0	4 0	Scorzonera, bundle	1	6 0
Endive, dozen	1	3 1	Shallots, per lb.	0	3 0
Herbs, bunch	0	3 0	Spinach, pad	0	0 4
Leeks, bunch	0	2 0	Sprouts, half sieve	1	6 1
Lettuce, dozen	1	3 0	Tomatoes, per lb.	0	4 0
Mushrooms, per lb.	0	6 0	Turnips, bunch	0	3 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (various) per dozen	6	0 to 36	Ferns (small) per hundred	4	0 to 8
Aspidistra, dozen	18	0 36	Ficus elastica, each	1	0 7
Aspidistra, specimen plant	5	0 10	Foliage plants, var. each	1	0 5
Azalea, per dozen	24	0 42	Genista, per dozen	10	0 12
Chrysanthemums, per doz.	6	0 12	Hyacinths, large, per dozen	6	0 12
Cinerarias, per dozen ..	10	0 12	" (Roman), doz. pots	6	0 8
Cyclamen, per dozen ..	9	0 18	Lycopodiums, dozen	3	0 6
Daffodils, per dozen ..	8	0 10	Marguerite Daisy, dozen ..	9	0 12
Dracæna, various, dozen ..	12	0 30	Myrtles, dozen	6	0 9
Dracæna viridis, dozen ..	9	0 18	Palms, in var. each	1	0 15
Erica, per dozen	9	0 12	" (specimens)	2	0 63
" hymnalis, per dozen	10	0 15	Poinsettia, per dozen	9	0 12
Euonymus, var., dozen ..	6	0 18	Primula sinensis, per dozen	4	0 6
Evergreens, in var., dozen	4	0 18	Solanums, per dozen	9	0 12
Ferns in variety, dozen ..	4	0 18	Tulips, dozen pots	6	0 9

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in var et .

	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches ..	2	0 to 4	Mignonette, dozen bunches	3	0 to 6
Arum Lilies, 12 blooms ..	4	0 5	Mimosa (French) per bunch	1	0 1
Asparagus Fern, per bunch	2	0 2	Narciss, White (French), dozen bunches	3	0 5
Azalea, per dozen sprays ..	0	6 1	Narciss, Yellow (French), dozen bunches	1	0 2
Bouvardias, bunch	0	6 0	Orchids, various, per dozen blooms	1	6 12
Carnations, 12 blooms ..	1	6 3	Pelargoniums, 12 bunches	6	0 9
Christmas Roses, 12 blooms	1	0 1	Pyrethrum, dozen bunches	1	6 3
Chrysanthemums, dozen bunches	3	0 9	Roses (indoor), dozen ..	1	0 2
Chrysanthemums, 12 blooms	2	0 6	" Tea, white, dozen ..	1	0 2
Daffodils, dozen blooms ..	0	9 1	" Yellow, dozen (Niels)	6	0 9
Eucharis, dozen	3	6 4	" Red, dozen blooms ..	2	0 3
Gardenias, dozen	4	0 6	" Safrano (English), dozen	1	0 2
Geranium, scarlet, doz. bunches	6	0 9	" Pink, per dozen	3	0 6
Hyacinths (Roman), 12 sprays, and per bunch ..	0	6 1	Smilax, per bunch	5	0 6
Lilac, White (French), per bunch	8	6 5	Snowdrops, dozen bunches	1	0 2
Lilium longiflorum, 12 blooms	6	0 8	Tuberose, 12 blooms ..	1	0 1
Lily of the Valley, 12 sprays, per bunch	0	6 1	Tulips, dozen blooms ..	0	6 1
Marguerites, 12 bunches ..	2	0 3	Violet Parme, per bunch ..	2	0 4
Maidenhair Fern, per dozen bunches	6	0 8	" per doz. bunches ..	1	6 2
			" (French), per dozen bunches	1	0 2



THE WORLD'S BREAD CORN.

IN these days, when all industries are closely watched, and all results reduced to figures, it is interesting and not a little instructive to look back for a few years on the development and growth of the corn cultivation.

It is a fact we are likely to lose sight of sometimes that till lately a vast population, numbering millions, fed on bread stuffs made of other than Wheat flour, Rye, Barley, and the like. They did not eat these inferior grains from choice but of necessity, and no sooner did Wheat flour become both cheap and plentiful than

they were ready consumers of the better quality. That they will ever want to return to their old diet is hardly probable; the tendency of human nature is to crave for more luxuries and comforts.

We English farmers thirty years ago, secure in our position as Wheat growers, never dreamed of the troubles the future had in store for us. If indeed we knew we hardly realised what immense tracts of land were opening out in Canada and the States. We never reckoned with the small South American State of Argentina. Indeed it was doubtful we could at first sight have found it on the map.

Alas! poverty has acquainted us with strange bedfellows, and we have been learning a very severe lesson. Low prices we had seen and met, but depression caused thereby passed till 1879, when depression came, not as a passing guest, but to stay apparently permanently. In 1878 Wheat dropped to 46s. 5d. per quarter, 10s. 4d. less than the preceding year. In 1879 43s. 10d. was the price per quarter; from 1880 to 1882 it rose to 45s. 4d.; in 1883 the average was 41s. 7d.; in 1894 it reached the lowest average of the century—namely, 22s. 10d. "The mean price," says Mr. Bear, "of the last six years is 44½ per cent. lower than that of the 'seventies.'"

Now for the reason of this great drop in price; it is not far to seek—greater acreage under Wheat and some phenomenal crops. In one country—viz., the United States—there was an increase of nearly 19,000,000 acres in the ten years ending 1880. During the "eighties" the U.S. did not develop their Wheat-growing area; but we find the harvests of the decade ending 1890 were better than those of the former decade.

There seemed a chance in 1891 the Wheat prices would rise, as Russia was threatened with famine, and the French crop was deficient by at least one-third. Rye, too, on which so many of the Russian peasants subsist, was almost a failure, not only in Russia, but in other Rye-growing countries. But this shortness of supply only had the effect of sending up the English price 3s. 2d. per quarter. This only lasted about twenty-eight days, then down it went to 36s. 6d. Why? The American crop was the largest hitherto produced. They exported considerably more than double the average of the preceding four years. Argentina exported 15,000,000 bushels. India sent to Europe nearly double what she had ever sent before, and Canada supplied other 12,000,000 bushels.

Although Russia and France were in such sorry plight, the one famine stricken, the other with a crop much below the average, the world's Wheat crop was larger than had ever formerly been known.

In 1892 the price fell to 25s. 9d.; this was owing to the still greater crop of that year. In 1893 there was a further increase in the Wheat supply. The United States fell off a little, but Argentina came to the front with a grand total of 57,000,000 bushels. The European harvest, too, was a great one, India good, Australia over an average; but it was destined that we should see in 1894 the greatest Wheat crop on record.

The United States produced over an average, Argentina now reached the grand total of 79,000,000 bushels, there was a record crop in Europe, India had an average Wheat harvest, Canada a good crop, Australia a moderate one. All this combined to produce an embarrassing supply of Wheat, coming, as it did, after four good years, so that in September of that year we had in hand 19,000,000 quarters, and added to that the largest crop on record. Down dropped prices again, absolutely touching the low figures of 17s. 6d. per quarter. As Maize was very dear, much of this Wheat was consumed by stock in the States, the quantity being estimated at 100,000,000 bushels.

Wet weather had spoilt a good deal of the grand European crop, and so a tremendous proportion was here also consumed by stock; and, added to this (as we remarked earlier), the Rye-eating nations took to Wheat flour instead. The crop of 1895 was a good

one, though less than that of 1894, and prices rose in December to 25s. per quarter.

Although early in 1896 there were signs of a coming scarcity in the Wheat crop, prices remained low, and continued to fall till the third week in August. Even when statistics proved that the supply was from 18,000,000 to 20,000,000 quarters short of 1895, there was no rise in the markets till August 24th. On October 19th there was in Mark Lane an advance of 3s. to 5s. per quarter. This was in a measure owing to the fact of the disappointing yields in the States and Canada, a deficiency of 5,000,000 quarters on the Russian crop, severe drought in Australia, and impending famine in India.

What the price of Wheat will be before next harvest is a secret of the future. A good seed time this spring will tempt Argentina and Australasia to increase their acreage. We have at present a very short supply, and that in the face of an increasing population. Dare we hope once more to see Wheat growing assume its old place in the annals of farming, and be again a remunerative crop? The cheap loaf is all very well, but it may be too cheap, and while it saves the pockets of some, means ruin to others.

WORK ON THE HOME FARM.

Another week has passed away, we are well into February, and farm work is almost at a standstill. True we can realise last year's crops, and by so doing we are keeping markets in a congested state, and preventing any rise in price, but preparation for another harvest is impossible. All we can do is to wait patiently until the clerk of the weather is in a more genial humour. Meanwhile we can gather a little comfort from the fact that the frost is doing much good to the soil, and that an enormous amount of water has drained off during the last two weeks.

The consumption of food by cattle is now very heavy, the supply being anything but excessive. Straw has not stood as much eating as usual; this is generally the case after a dry summer when the straw is short, there always seems to be a larger proportion of pulse and waste. Fortunately Swedes are taking up heavy, and are holding out well. We cut up all the straw, and give pulped Swedes with it in about equal proportions; this is a much larger proportion of root than we usually can afford for the holding stock, but they must have it to eke out the straw.

Very few cattle are being fed off in some districts, and we are looking for a rise in price of beef shortly. Let us hope the Americans will not flood us with meat and spoil the prospect. There is a better feeling in the trade already, and the same may be said of pork, both fat and store pigs being very decidedly dearer. Ewe mutton is again bad to sell, and we cannot wonder at it. We do not own to a partiality for it ourselves, and it is not surprising that townspeople have similar tastes. Even the Oliver Twist of to-day is not snubbed if he complains that the work-house mutton is tough or too fat. He never has any need nowadays to ask for more, for the Local Government Board insist on his having more than he can eat; but this is good for the meat trade if only the farmer were not the chief payer of the bill.

Breeding mares require great attention now. They must not be put in shafts on any account, and heavy pulling of any kind is bad for them; at the same time regular light work is most desirable.

METEOROLOGICAL OBSERVATIONS.

OAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1897. January and February.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 31	29.428	34.2	34.0	N.E.	34.0	36.9	33.5	40.0	32.2	0.194
Monday .. 1	29.321	35.2	34.9	N.E.	34.0	37.1	33.4	38.2	30.0	0.393
Tuesday .. 2	29.180	35.2	36.2	N.	34.9	37.2	34.9	39.6	33.1	0.456
Wednesday 3	29.768	34.2	34.1	N.	35.0	44.6	32.1	47.9	28.1	0.114
Thursday .. 4	29.852	44.4	43.9	W.	36.1	43.5	34.3	55.3	32.2	0.539
Friday .. 5	29.506	41.6	41.2	N.E.	38.6	46.4	41.2	46.8	40.3	0.462
Saturday .. 6	29.537	38.7	36.4	W.	38.3	40.4	36.1	45.7	34.7	—
	29.513	37.8	37.2		35.9	41.6	35.1	44.8	32.9	2.208

REMARKS.

- 31st.—Dull all day, and dark about 1 P.M.
1st.—Rain in small hours; slight snow early; dull drizzly day, with high fog at 1 P.M., and slight fog in evening; rain at night.
2nd.—Almost continuous rain till 2 P.M., and from 5.30 P.M., changing to snow about 8 P.M., and continuing to midnight.
3rd.—Overcast early, foggy from 9.30 A.M., and rainy from noon to midnight.
4th.—Mild and dull day; rain from 7 P.M. to 9 P.M.
5th.—Almost incessant rain from 0 A.M. to 9 P.M., and dark and foggy in afternoon.
6th.—Fair day, with a little sun in morning.
A week of average temperature, and of very heavy rain.—G. J. SYMONS.

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LONDON, W.C.



Journal of Horticulture.

THURSDAY, FEBRUARY 18, 1897.

CUCUMBER AND TOMATO TROUBLES.

WHEN the ordinary human creature gets "out of sorts" he is apt to read up all medical information bearing upon his particular form of complaint. What is the result? Simply confusion. Afflicted persons are advised to abstain from nearly everything that goes to make life enjoyable, and the other remedies can be reckoned up by the score. It is much the same with our troubles in the plant, and more especially the fruit-growing line. I have had what I feel disposed to assert more than my share of these, and as a matter of course consulted the oracles on all possible occasions. Result—nervousness, prostration, and finally recklessness. These experts render good service in drawing attention to and diagnosing the various diseases they make a study of, and occasionally have the good fortune to suggest a remedy for some of them. Unfortunately the majority of these specialists are strong in theory, but not practical. Some of their suggestions are quite unworkable and ridiculous, and if we heeded one-half of what they advise, the remedies would be worse than the diseases. This I have proved to my cost.

Our good friend Mr. Abbey I do not class with those who are theoretically strong only. It is true he revels in many and sundry scientific phrases, which practical men abominate; but he is one of our most experienced gardeners, and what comes from his pen ought to be treated with respect. I believe I have to thank him for one good remedy, and also for being nearly frightened out of practices which I have since returned to, and found to be the salvation of certain crops. My time is so fully occupied that I do not propose to follow Mr. Abbey through his various communications on the subjects of Cucumber and Tomato diseases, my intention being to convey in a plain manner my own experience during the past few years, commencing with Cucumbers.

That great bugbear the eelworm has been much in evidence of late years; but is no new trouble. It has always been with us; but the

serious failures with Cucumbers among market growers have brought the eelworm into prominence. If my experience is any criterion we have largely to thank ourselves for the mischief that befalls our plants. Correct methods of cultivation I believe to be the best preventives. On the score of economy in construction market growers have been tempted to grow Cucumbers in houses not sufficiently well heated, bottom-heat pipes in particular being conspicuous by their absence. The plants may grow remarkably well for a time in little mounds of compost resting on the solid ground; but once let the treatment be of a nature to militate against good surface-root action and it will be a case of good-bye to the plants. When plants in full bearing order fail by the dozen or score eelworm or some other dire complaint is credited with the cause. Let experts once get hold of the stems and roots and they are certain to find something very bad with a high-sounding name. The enemies they see are of course there, and the savants make the most of them and—themselves; but the pests are more the effect than the cause of the collapse after all.

Private gardeners frequently start their Cucumber plants on hotbeds of manure or manure and leaves. While the fermentation continues the plants are in a happy thrifty state. Unfortunately heat and moisture soon lead to the heating material becoming rotten, and then, if there are no bottom-heat pipes, it is not long before some or all of the plants commence flagging seriously in the sunshine. The eelworm is then in the ascendant. It has been invited, and has accepted the invitation. The same thing happens when heavy masses of rich retentive soil are provided for the plants to root in, or worse still, banked heavily over the old soil by way of a top-dressing—sometimes in the case of plants grown in frames when the bottom heat fails.

The other extreme—too much heat and too little moisture at the roots—must also end fatally to Cucumber plants, especially as treated by some market growers who have not had sufficient experience in the “express system.” It would really appear that the eelworms are present in most soils that may be prepared for Cucumbers, and are only waiting for a check to the growth to be given before asserting their destructive power. If by good culture healthy root action is sustained it is not much harm that this minute pest can work. This dictum may not commend itself to some of my readers, but first let them see whether the treatment that failed in their case corresponds in the more important points with what I am about to advance as being nearly or quite the correct practice.

Cucumbers are essentially heat-loving plants, therefore provide sufficient fire heat to maintain a temperature that seldom if ever falls below 65° during the night, with an increase of 5° to 10° by day from fire heat in the early spring months, while the bottom heat ought to be nearly or quite as strong. Instead of planting healthy young plants on the top of a great mass of soil, insert them deeply, yet carefully, burying 2 inches of the stem in about a peck of soil previously well warmed through. What kind of compost ought to be used is a question that would quickly occur were I to omit all description of what answers well with me. In anticipation I reply, Nothing very particular. If “good brown fibrous loam,” which we hear so much about, and which so few of us can obtain, be available, by all means use it, breaking it up roughly, adding only a little manure. Some growers stack their turves with farm-yard or stable manure sandwiched between. They may do so for aught that I care, but give me fresh soil stacked only long enough to kill the grass, and nearly fresh manure.

As it happens, we can only procure turf of a black, spongy, water-holding nature, and much prefer sandy medium loam, or a natural blend of clay and loam in equal parts, without any fibre in it, and as “poor as a crow.” To two parts of this are added one part of horse droppings, prepared as for a Mushroom bed, with a liberal addition of wood ashes and scorched soil. This is good enough to plant in, and with a “peppering” of soot good enough for the subsequent top-dressings. Doubtless eelworms are introduced with

either the manure or soil, but it depends on ourselves whether they shall prosper or not. What we have to remember is that Cucumber plants growing in strong heat must evaporate large quantities of moisture, and unless roots are constantly and rapidly increasing, of what avail are the heavy supplies of water? On the other hand, sometimes the cultivator forgets to supply abundance of water to the roots, or not enough to keep them alive, let alone meet the requirements of the foliage, then the eelworms are happy.

Cucumber roots delight in a moist warm atmosphere, and should be kept active well within the reach of it. That is a good reason for starting with a small mound of porous soil. As fast as the roots take possession of the old soil top-dress lightly with some fresh compost, once a week not being too often to give these light surfacings. If the soil is not unduly exposed to the sunshine nor allowed to become too dry the whole mass is soon taken possession of by a network of root fibres, and eelworms make no progress. During hot weather once a day is not often enough to give water, but the plants should have it twice, if not three times, also keeping the atmosphere nearly saturated. Heavily cropped plants should be assisted with clear soot water, varied with nitrate of soda applied at the rate of half an ounce dissolved in one gallon of water. We use it ready dissolved, measuring the liquid that is added to each can of water with a handy tin ladle. Anything that clogs the surface of the soil, including thick soot water, does more harm than good.

Many gardeners pride themselves in keeping their plants in a healthy bearing state for the greater part of the season. It would be less trouble and more satisfactory in the end if they adopted the market growers’ plan of getting all they can out of their plants in a few weeks, and then start afresh. A succession could easily be kept up by commencing with one-third less plants than formerly, making successional sowings and plantings at intervals of about a month. Plant at 2 feet apart, run the plants up quickly, crop heavily from the lateral growths, leaving no fruit on the main stems, and if grown quickly the produce will be of superior quality to that usually obtained from worn-out old plants. There is not much time for eelworms to do much mischief under that system.

Now we are come to the phenyle business. Little’s soluble phenyle was first suggested in these pages (by Mr. Abbey, I believe) as a possible remedy for eelworm. After giving it a fair trial I can honestly affirm that it does check the progress of eelworms, and I keep a tin or small drum of it always at hand in case it is wanted. When important work has to be entrusted to careless youths it is apt to be scamped. Our Cucumbers sometimes apparently get enough water, but only the surface is moistened while the soil underneath may be as dry as powder. That is the eelworms’ opportunity. Anyway, whenever any of our plants commence to flag from no apparent cause an examination of the roots usually discloses the fact that eelworms have gained the upper hand, and knobs on the roots are plentiful. Thoroughly moistening with clear water is not enough, but if followed by a dose of phenyle applied at the rate of 1 pint to 18 or 20 gallons of water, the majority, if not all of the affected plants, will regain their rigidity, and quickly make good growth both below and above the soil. We do not wait till the plants are half dead before applying phenyle to the roots, but commence with it on the least signs of flagging.

Last season, in order to thoroughly test the value of phenyle, we used the soil in a Cucumber house a second time, well knowing that eelworms were numerous in it. It was given a soaking of phenyle rather stronger than I have recommended for the growing plants, and “livened up” with a little fresh soil and manure. Considering the lateness of the season, the result was most satisfactory, the phenyle having done good service, both as a manure and insecticide. This is enough at once, Tomatoes another time.—W. IGGULDEN.

ACACIA CULTRIFORMIS.

SEVERAL of the Australian Acacias are known in gardens, as they are useful and distinct plants for greenhouses, and mostly flower profusely in the spring months. One of the species—namely, *Acacia cultriformis* (fig. 30)—is peculiarly distinct from most of those with which most growers are familiar. It has flat, somewhat triangular, silvery white phyllodes, and racemes of small, globular, bright yellow flower heads freely produced along the branches, and when a good-sized specimen is in flower it has a very remarkable appearance. In pots, plants of moderate size flower readily, requiring a compost of peat and sand, with the same care in the supply of water as is needed for hardwooded plants. During the spring months some of the florists' shops display bunches of *Acacia cultriformis* apparently obtained, with others now in great demand, from continental growers.—F. W. W.

OUR HARDY PLANT BORDER.

(Continued from page 555, last vol.)

WALLFLOWERS.

THE work of preparing the border, as regards digging and allotting sites for plants requiring particular soil or special treatment, having been accomplished, as already described, it became necessary to arrange for the planting. The situation being both cold and damp necessarily restricted the selection of plants greatly, as in order to avoid the annoyance and loss that would result from the continual death of choice or delicate plants, only those that possessed the hardiest constitutions could be chosen. At the same time it was desired to secure as good a floral effect as possible, and the best means of assisting this object seemed to be afforded by raising seedlings of some of the more effective annuals or biennials. First on the list were placed Wallflowers, chiefly because they are great favourites, but also for the reason that they could be easily and quickly raised, and an extensive bright display could be insured the following season. To this useful plant therefore a few remarks will be devoted in the present letter.

Perhaps few better instances are afforded of the extreme range of conditions under which cultivated plants will thrive, as compared with their wild state, than we have in the Wallflower. The *Cheiranthus Cheiri* of botanists is not only a native of England, but is also found in many districts of Europe, frequently on old walls and in similar situations where there is comparatively little nourishment to support vegetable life, and which seem more adapted for such succulent plants as *Sedums* and *Sempervivums* than for a plant of the Wallflower habit. Some years ago a garden under our charge was bounded on one side by an extremely old wall of considerable thickness, and this was the abode of many interesting little native plants; but most conspicuous amongst them were the Wallflowers, which have during a long period held a position there, every season producing abundance of their bright yellow flowers, followed by seed from which an annual supply of young plants keep up a constant succession. Many of these when in flower formed miniature bushes 4 to 6 inches high, symmetrical little models, every branch terminating in numerous small flowers rarely exceeding half an inch in diameter.

These are the kind of plants found as wild representatives of the Wallflower, yet under cultivation we have had plants over 2 feet in diameter, bearing hundreds of flowers 1½ to 2 inches in diameter. They will grow and flower, too, in almost every situation, except that swampy or much shaded; but though the extremes are not desirable, yet a moderately moist but well drained soil is preferable to a dry one, notwithstanding the fact that the Wallflower in a wild state is almost invariably found in dry, poor situations. Wallflowers can be greatly improved by the judicious application of manures, especially artificial manures, as we have fully proved, but the time at which the stimulants are applied, and the condition of the plants when the manurial aid is supplied, if this is done after the plants are transplanted from the seed bed, are of great importance. Apart from the use of manures altogether, however, the method of raising the plants and the growth secured before the winter have a considerable bearing upon their ultimate success.

The time of sowing is an important matter, and though we have sown every month from March to August, there is one time which in the majority of seasons has given much the best results, and this is the first week in May. In warmer districts April, or even March, will be suitable, but it is not advantageous to give the plants too long a season, all that is required is a well developed but sturdy growth that will not suffer during the winter. Still, if not sown sufficiently early for the seedlings to have progressed beyond the early stage before the heat of summer overtakes them, they will be seriously and often permanently checked for the whole season. This is precisely what must be avoided as far as possible,

as, like many other plants raised from seed, the Wallflower is impatient of any prolonged check in its young state.

The seed bed should be well prepared by digging and pulverising the soil, but it must be moderately firm; and we prefer sowing the seed thinly in drills 6 inches apart to sowing broadcast in a bed. Various stimulants have been tried, to ascertain whether any advantage is derived from providing some special food in the soil ready for the seedlings to appropriate to their immediate advantage, but the only benefit observed was in one season, when owing to unfavourable weather a late sowing had to be made. On that occasion half the seed bed received a very slight dressing of nitrate of soda, at the rate of about a quarter of an ounce to the square yard, the result being that the seedlings on the dressed

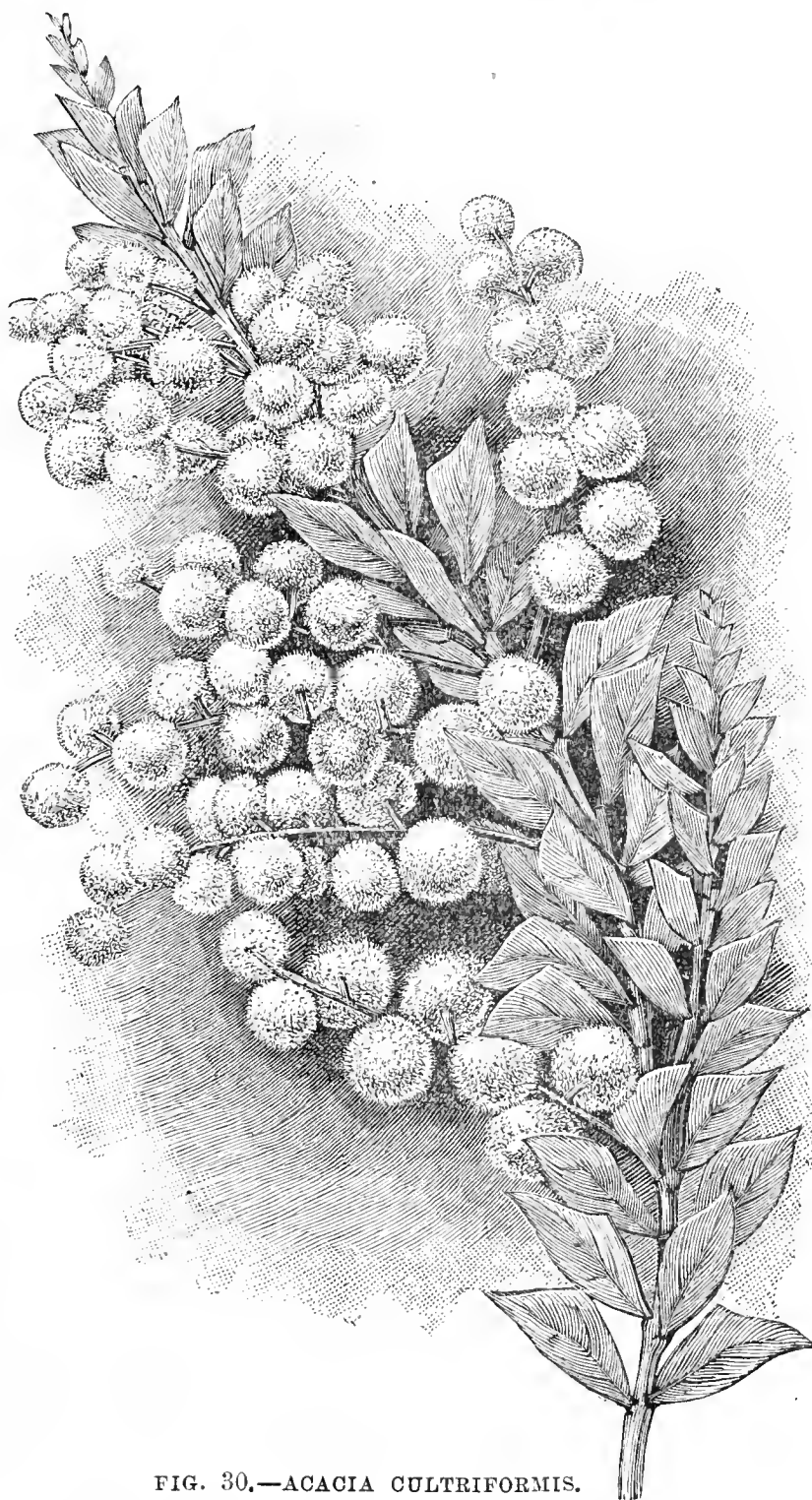


FIG. 30.—ACACIA CULTRIFORMIS.

portion of ground made much more rapid progress than the others, in fact they were very little behind those raised two months earlier in the ordinary way. Beyond this no special advantage has occurred from manures in the seed bed—indeed, there is a danger of having too much growth before the young plants are thinned.

The question of transplanting is an important one, and a comparison has been made of the effects produced by the following methods of treatment:—1st, Sowing the seed where the plants were to remain, and thinning to the required distances; 2nd, Transplanting direct from the seed bed to the position where the plants are to flower; and 3rd, Transplanting from the seed bed, and then again subsequently to their permanent quarters. The last necessarily means considerably more expenditure in time and labour, and therefore under some circumstances would be impracticable, but experience has in my case proved that this system gives much the best results. The chief difficulty is to secure suitable weather conditions at the first time of transplanting, which is preferably done within a month from the time of sowing if the seedlings have made sufficient progress. This brings it to the first

or second week in June if the sowing is made early in May as advised, and should the weather prove hot and dry the plants are liable to suffer very much. It is therefore sometimes advisable to wait a week or more to endeavour to secure the right opportunity, and in any case a thorough supply of water, both before and after planting, will be needed.—A COUNTRYMAN.

(To be continued.)

PRECEPT AND PRACTICE.

(Continued from page 89.)

CONTINUING our brief introduction to nomenclature, names denoting colour present probably the least difficulty to a beginner, and once grasped are easily retained. Alba, white; aurea, golden; viridis, green; cyanus, bright blue; rosea, pale red; purpurea, purple, are duly represented by *Anemone japonica alba*, *Valeriana Phu aurea*, *Ixia viridiflora* (probably the most telling example we have of a green flower), *Centaurea cyanus*, *Primula rosea*, and *Justicia purpurea*. From the principal colours spring many equally expressive terms, which our young student cannot fail to become acquainted with according to his desire for knowledge and steady application to acquire it. Variegation and marking may here be coupled with colour. Variegatus, or variegata, is a name speaking for itself, whilst guttatus, spotted; punctatus, dotted; pictus, painted; marginatus, edged; and vittatus, striped, are equally adapted for our purpose, and need not further detain.

Habit is revealed by such names as procumbens, procumbent—spreading on the surface; erecta, erect; dependens, hanging; prostratus, prostrate; spiralis, spiral; plicata, plaited—folded like a fan; all of which can be identified respectively by observing the manner of growth of *Gaultheria procumbens*, *Cupressus erecta*, *viridis*, *Cantua dependens*, *Dianthus prostratus*, *Vallisneria spiralis*, and *Panicum plicatum*. The native homes of many of our plants are constantly before us in such names as capensis, the Cape; sinensis (or chinensis), China; indica, India; japonica, Japan; brasiliensis, Brazil; persica, Persia; with a host of others fairly easy of recognition. Those names which have now been noticed are samples of what may be termed descriptive names—that is, describing in some way or another some characteristic of the plant they are appended to. A passing notice of names not included in the above category, which for our purpose we will call generally distinctive, may conclude this subject. These require but little explanation, the bulk of them being names of honour resolving themselves into two classes, the first of which, ending in *i* or *ii* (the Latin genitive singular), as Veitchi, Douglasii, Burbidgei, have been awarded to particular varieties in recognition of the discoverer, introducer, or raiser. Purely complimentary names are (or should be) distinguished by the qualifying termination of anus, ana, or anum, as *Sanderianus*, *Devonianus*, *Lowianum*.

There is, I believe, some little confusion of ideas still existing relative to these qualifying terminations of names of honour. The simple rules I have endeavoured to lay down are the grains picked up when the argument was thrashed out in a potting shed some thirty years ago. Since then I have found the correctness of the principle endorsed by a very high authority upon the matter. Respecting the use or omission of capital letters in writing these distinctive or descriptive names, the matter whilst being of some importance is one upon which even "doctors differ." We can therefore only follow such customs with their variations as are to be found in carefully edited plant literature. Some trade catalogues leave little to be desired in plant nomenclature, but many are in that respect faulty. The *Index Kewensis* ought to be the standard authority, but it has been weakened by the different renderings of certain names in subsequent "Handbooks" from the Royal Establishment. Once more I would beg young readers to understand that these explanatory remarks upon nomenclature are but the desultory digging up of a few old Latin roots in that vast field through which many pass unheeding the rich stores buried beneath an apparently hard crust; but what a pleasure it is to find such revelations of character to enhance the value of a world of beauty.

Greek roots are occasionally to be met with. Chryso, yellow; chloro, green; and erythro, red, for example. Reference to standard works and personal observation will not fail to detect their right of being. The Latin tongue being the foundation of speech in France, Spain, and Italy one cannot proceed far without noticing the connecting link between those languages and the great importance it has in its bearing upon our subject. Owing to a series of short papers entitled "Bothiana" having appeared so recently as 1895, vol. xxx., commencing on page 330, it is scarcely necessary to repeat the several hints there laid down for self-tuition in the bothy or prior to entering it, but I would ask our young student to turn back to them if he can conveniently do so, and assimilate in the morals there conveyed.

To attempt any course of self-tuition in a desultory manner is simply out of the question with those who wish to reap the highest possible benefit; hence in spite of what has been previously promulgated, I will venture to express a few thoughts upon this matter. Looking back on early life, and recalling the memory of one of the stiffest battles I ever fought with myself, I cannot but sympathise with those boys who are fighting now the same battle, and fighting it, as practically they must, alone. Over this subject hangs the crisis by which we are henceforth to be governed by inclination or guided by reason. Supposing some young reader has now the moral courage to commence a series of apparently well planned lessons with all seriousness of purpose, what are the unseen dangers so fatal to many who thus begin? It may be that a lad has fashioned his plans upon a mistaken judgment of their ultimate utility, and after starting a dawning consciousness that such is the case tempts him to make a fresh start in another direction; this, in its turn, may, from a similar cause, entail further change, a state of things which may be prolonged indefinitely. Such is not of uncommon occurrence in life, but most disastrous.

I have said somewhere before, and must repeat it, that a vacillating policy is of all policies the worst. Our young student cannot contemplate too seriously the lines of self-tuition he is about to lay down, and he may also endeavour to form a fair estimate of the leisure he is likely to command, with an approximate filling in. For obvious reasons this might be done on a sliding scale, in fact should be, according to season and its contingent calls of duty upon the leisure hour; but at starting this sliding scale must entail a certain danger of slipping to our youngest travellers, therefore I would rather see them adopting some simple course of reading, writing, drawing, and what not, for the first twelve months. Having laid down your rules of self-instruction for this period, let them be unto you as the laws of the Medes and Persians till the term has expired. If on the expiration of one month, or two, or three, the conviction is forced upon your mind that some little mistake has been made, that it would be better to change a subject, and "zigzag" in something else, do not give way, I beseech you, unless from circumstances over which you have no control. I would rather see you pursue a somewhat mistaken course of self-tuition for twelve months, for the loss may be but small, the gain infinite, possibly affecting the whole course of life.

Self-imposed tasks are seldom easy ones at this age. Can you lay down a year's course of training for the leisure hours and keep the track with unflagging zeal? If so you are more than conqueror. Probably not more than one in a dozen can accomplish this; but each should try to be that one. Its importance may not be immediately recognised, but it is the secret of success. Only those who have fought such battles and gained them know the subtlety of the unseen enemy who is overcome. Granted this most desirable state of things the rest is comparatively easy, for our labours are now metamorphosed into a most delightful recreation worthily crowning the day's work. A conscientiously kept diary is, I think, an invaluable aid, the act of writing alone being particularly helpful to engrave things upon the memory. A large folio office diary 13 by 9 inches, interleaved with blotting paper, three days on a page, is probably the best we have at present for the purpose. The blotting pages I invariably use for pencilling down any surplus memoranda. Used in the ordinary way as a blotter I think disfigures the book; perhaps you may think so too, and keep a sheet of ordinary blotting paper for the purpose. In any case let your diary be a model of cleanliness and neatness; there is no pride or pleasure taken in a smeared or smudged volume. These small things are the indices of character, and have not been beneath the notice of that great satirical writer Pope, who said, "E'en copious Dryden wanted or forgot, the greatest art—the art to blot."

As we receive so many good things from Fleet Street it may be that some day we shall have a "Gardeners' Diary" on the same lines as the office diary mentioned, with the substitution of relevant memoranda for that better suited to commercial men. Such would come as a boon and blessing to most gardeners, especially young ones. I venture to think that a diary with fac-simile covers of the bound volumes of the *Journal of Horticulture*, and so arranged as to be worthy of bearing the same motto, "For Gardening and Gardeners," would be gladly availed of by most members of our large family, and even at a necessarily increased cost would, indeed, be worthy of ourselves and our shelves.

However; Boys! do not wait for the good things coming. Remember a diary is all but indispensable. Make the best use of the best to hand, in which set down all your memoranda decently and in order. We, of all men, must conform to heaven's first law in all phases of our life and work, however trivial they may appear, carrying those grand precepts into our practice which have ruled since "Yonder spheres sublime, pealed their first notes to sound the march of time."—AN OLD BOY.

(To be continued.)

GROWING TUBEROUS BEGONIAS.

STARTING THE TUBERS.

As a rule the tubers of double and single tuberous-rooted Begonias do not commence growth early without some gentle stimulation. They should not be forced or hurried into starting by an undue amount of heat and moisture. A constant and regularly moist bottom heat of 55° to 60° is a suitable temperature for promoting growth. Heat and moisture judiciously applied and managed during the time preceding the appearance of shoots, as well as for some time afterwards, is most helpful in securing a few early flowering plants of both double and single varieties for the decoration of the greenhouse and conservatory.

The main bulk of the tubers may be allowed to commence their growth in a more natural way. Afford a portion the benefit of a warm corner in a greenhouse or vinery. The rest may be temporarily placed in boxes of light sandy soil in a frame after danger of frost is past, and in due time sturdy young shoots will be produced, probably much more vigorous than those induced to push under the pressure of artificial heat. The frame treatment is without doubt the best for plants intended for bedding purposes. When they are thus wanted for outdoor purposes the tubers should be allowed sufficient room, so that the shoots and leaves may not be crowded at the first. Much depends on securing vigorous, compact plants, exhibiting no appearance of the growths being unduly accelerated. Frame treatment insures this, and the plants can be transferred direct from the boxes to the beds in the early part of June. Instead of placing in boxes the tubers might be planted in a spent hotbed in light, rich soil in April, keeping the lights closed until growth has started freely.

The method of starting the tubers into growth for an early display of bloom is simple and usually effective. Instead of placing the tubers in soil, which is liable to become sour before roots can enter it, I find cocoa-nut fibre refuse mixed with silver sand to be an excellent medium. It is open and readily diffuses warmth, retaining no superfluous moisture whereby the tubers or young rootlets can be injured. The young roots which issue from the tubers easily penetrate the particles and find the genial warmth as well as the moisture they delight in. That they like this substance is evidenced by the rapidity with which the roots multiply in it, forming quite large tufts or wigs of rootlets.

POTTING AND AFTER TREATMENT.

Though the fibre and sand is useful for the earliest roots to penetrate, yet the continued and successful growth could not exist upon the limited food supply the mixture affords, hence it is desirable that more substantial fare should be provided. A suitable compost for Begonias consists of well-decayed turfy loam four parts, leaf soil two parts, decomposed manure one part, and half a part. To a bushel of this mixture add a pound of artificial manure of a general character. By allowing the compost to lie a short time, frequently turning it, some of the elements in the manure will become diffused through the bulk, and a more complete intermingling of the whole ingredients secured.

In potting the growing tubers larger pots than necessary ought not to be employed. For producing the earliest plants the tubers should not by any means be overpotted. When it is desirable to shift the plants again the smallest sized pots in which the tubers can be accommodated should first be used. It is not advisable to cramp the tufts of healthy rootlets proceeding from tubers which have commenced growth into pots which will not admit of their being reasonably spread out. Some tubers only require once potting. Fair-sized examples furnished well with rootlets usually need 5, 6, or 7-inch pots, in which they may be allowed to flower. For the smaller tubers pots must be employed most suitable to their vigour as indicated by the strength or weakness of the growths and the freedom or otherwise of the rootlets.

Clean pots are indispensable. If the plants remain in them permanently for the season there is every need for sweetness and cleanliness. Should they only temporarily remain in the pots first used, subsequently transferring to others of larger size, the inside of the pots must be clean, in order that the roots may turn out easily and not adhere to the dirt on the pots, as they do when they are not properly washed. This is a simple matter, but one of importance. Arrange efficient drainage in the pots, and the tubers may be level with the surface of the soil when the potting is finished. The compost must be worked among the roots carefully, so that they are distributed well.

The potting material being moist when used, only slight sprinklings of water are required for a few days until the roots commence working. Subsequently more liberal supplies may be afforded, judging correctly the quantity needed at each application according to the activity of growth and the loss sustained by evaporation. Dry hot weather and free growth make large

demands upon the available moisture. A fairly moist atmosphere with a buoyant warmth of about 60° seems to suit the Begonias during the early stages of growth. Abundance of light is essential to modify the growth, but hot, direct sunshine may not always prove beneficial, and a light shade then becomes necessary. As the natural warmth of the season increases a free circulation of air is of the greatest importance. It insures the continuance of a short-jointed robust character of growth in the stems and a rich healthy tone of colour in the foliage. Flowers will then be produced freely and in the highest state of excellence the plants are capable of. Checks to growth, from any cause whatsoever, must be avoided when Begonias are on the point of flowering. This is the real cause of flowers falling before they open and buds dropping prematurely.

Mild stimulants, occasionally given, are of assistance to growth and the promotion of continued free flowering throughout the season. They are not required, however, until the pots are full of roots. Deficiently rooted plants do not experience any benefit from liquid manure. The applications tend to sour the soil, because the absorbing power of weak or few roots is not strong enough to abstract the supply quickly. Weak soot water may be used alternating with solutions prepared from cow, sheep, or horse manure used in a clear diluted state. Slight top-dressings of any of the advertised chemical manures, washing in with water, are excellent, or the manures can be dissolved in the water supplied.—E. D. S.

HARDY FLOWER NOTES.

STRIVE as we may it is difficult to write cheerily of our outdoor flowers when they are deep under the snow. We were in hope that other mild seasons might be repeated this year; that we might enjoy the earliest flowers without interruption from the great powers of the north. For a time it was but guerilla warfare they waged. Short-lived frosts, sprinklings of snow, cold winds. These only lasted a time, and were met, not unsuccessfully, by the gentler influences with which the hand of Nature calls her children from their sleep. But now—when January is nearly gone—the armies of King Frost are almost in possession of the land; their fierce beleaguering only modified by the gentler accompaniment of their ally the snow. All through the night it has fallen, and still it comes. It is the deepest fall of the season. The golden Winter Aconite cups are warm and snug under it. Its counterparts in purity, the Snowdrops, have bent to the ground beneath its weight, and are long out of sight. The Crocuses are shut off from our eyes by an impenetrable screen, and the other flowers which have sought to dare the winter's wrath gladden us no more. Yet we know they are there, and we shall not forget them as they were before they disappeared from our sight.

First must come the Snowdrops, many of which have been in bloom. Varied are they—not in colour perhaps, but in size and form. The common Snowdrop looks small and slender beside Elwes', one of the best forms of Imperati's great Italian one. The last reminds us of the name of the Snowdrop in that land of the south—*Pianterella*. How musical it sounds! Far more so than the German *Schneeglöckchen* (Snow Bell), or even the French *Perce Neige*. Benserade, the poet, has given us an exquisite verse, in which he makes the flower tell of its birth under the snow. Unfortunately it is in the language of "La Belle France," and thus hardly suitable for quotation here as it stands, and the writer cannot venture to put it into English verse. A prose paraphrase rendered somewhat roughly would express the thought after this fashion:—"The earth covered by a veil of silver, despite her coldness, gives me birth. The snow preserves my life, and, giving me her name, gives me also her purity."

One is tempted to linger among such thoughts of the flower, but we must leave them to look at it from another point of view.

The so-called "autumn-flowering" Snowdrops dallied by the way, and some, like the hare in the well-known fable, were overtaken in the race by others, which one would naturally expect to fall far behind. Among the earliest of these was one of Mr. James Allen's seedlings named Aurora. It has received an appropriate name so far as its early habit goes, and it is, moreover, a beautiful and shapely flower. When we see such charming blossoms as these one cannot wonder at the confession of that true lover of flowers, the Rev. H. Ewbank, in the Journal of January 28th. that he has often tried to pick Mr. Allen's brains. As Mr. Ewbank says, some of his Snowdrops are "extraordinarily lovely."

Such a one is Aurora, which a letter received from our good and generous friend, Mr. Allen, only recently, says is a seedling from *Galanthus Melvillei* major, but is quite different from its parent. It is one of the flowers to care for, as giving our gardens greater interest and higher types of beauty. Here one cannot

refrain from having a friendly difference with the talented Vicar of St. John's, always, of course, from a gardening point of view. In an earlier instalment of his delightful paper he is a little too severe upon the florists' points of perfection in a flower. Yet, after all, Mr. Allen's new Snowdrops, which he admires, are selected, one can easily see, upon the principles which guide the florist in his work.

The writer knows, both from Mr. Ewbank's public writings and his letters, which it is always a pleasure to receive, that he has much in common with him in the way of kindred tastes in gardening. It is likely enough, however, that Mr. Ewbank's criticism was meant mainly for that spirit which would carry the florist's art far beyond its proper bounds, and which has doubtless in too many cases given us monstrosity instead of shapeliness, and ugliness instead of beauty. There is, however, a sphere in which the florist can operate without debasing the flower. When he goes beyond this a protest is needed, and Mr. Ewbank's words, if so limited in their aims, are not uncalled for. Unless one is mistaken there is not very much difference at bottom between us.

Another very striking Snowdrop which has come early into flower is the best form of *G. Imperati*, which is named *Atkinsi*. It is extremely fine this year, and is well worth trying to obtain. Deep planting is very desirable with this fine Snowdrop as well as with most others. A good seedling Snowdrop raised in Lanarkshire has also been very early. This I have named *Fenella*. It is large, robust, and of capital form. Its parentage is *plicatus* × *nivalis*, and it differs from the most of those raised in the same garden by reason of its greater earliness. *Galanthus caucasicus* has also been in bloom for some time. The small size of the flowers is, however, a defect in this species; they are too small to be in keeping with the length of the stem. The leaves are the chief merit of this Snowdrop; they are not fully produced until the flowers are past, but are very broad and fine.

G. Alleni, in rather stiff soil at the base of a rockery, is coming on well. Then *G. flavescens*, one of the few with yellow instead of green markings, and with yellow ovary, has been coming on quickly, although the look of the plants would lead one to think that the yellow, which is its distinctive feature, will be less pronounced than usual. *G. Elwesi Beauty*, another of Mr. Allen's seedlings, is also very fine—or rather was before the snow, and will be once more when it goes again.

The dreaded Snowdrop fungus has again made its appearance in one part of the garden, where it was introduced by roots brought from a neighbouring wood. Whenever it is observed all that can be taken away is removed, and put in the fire of the greenhouse boiler. The fungus shows itself in a white mould-like mass on the surface of the soil just where the stalk of the flower comes through. The stalk will be found to be rotted down for a little distance, and ought to be removed and burned also. Mr. Allen has found several cases of fungus in his garden this year again, but one must hope that that successful Snowdrop raiser may not have once more to deplore the loss of some good flowers.

Here the early Irises are rather late, but Mr. Allen tells me that on New Year's Day the first of his opened at Shepton Mallet. This was a very pale blue form of *Iris reticulata* of great beauty and hardiness, although not robust, nor increasing rapidly. The Netted Iris is so very beautiful that we could well do with a few more varieties. We want more workers in the field of raising seedlings of bulbous flowers not taken in hand by the ordinary raiser of plants from seed. It would be wrong to hold out a prospect of reward in the shape of £ s. d., that is unlikely to follow so readily as to repay anyone for their time and care, but the pleasure of adding new plants to our gardens would be some recompense.

That was an interesting article on "Hepaticas" which appeared in the Journal of January 28th (page 76) from the pen of "R. P. B." The "ash-coloured or argentrive" variety the writer also would like to know more about. "Ash-coloured" would hardly answer the description of either of the varieties of *H. angulosa*, which, by the way, your correspondent is to be congratulated on flowering so successfully. The double white one has been in cultivation in this century, as, in addition to two acquaintances of my own who have seen it, a flower was sent from Germany to the office of one of the gardening papers ("The Chronicle") in 1895 or 1894, and mentioned by the editor in its columns. Is not "*H. trifolia aureum*" one of the Anemones, as distinguished from the Hepaticas, really Anemones also? The writer read in a series of articles on Canadian wild flowers, which appeared in a Montreal newspaper, the following, applied to the Hepatica:—"The colours of the flowers are white, many a shade of blue, and rarely a pale yellow." The italics are mine.

Upon particular inquiry of competent authorities in Canada no confirmation of a pale yellow Hepatica can be received. There are many seedlings in my garden, some of which have flowered, and others are in bud now. There are several interesting shades

among them. "R. P. B." will likely find that his one with deep pink flowers (if not the single of the double red) is that named *splendens*.

When the snow clears away again we shall have more to tell of, and may return again to the Hepaticas, unless other flowers take up more space to their exclusion. There are some Crocuses under the snowy pall, and one or two clumps of Daffodils far advanced, besides *Hyacinthus azureus*, and a few other things. We wait eagerly and expectantly for their re-appearance.—S. ARNOTT.

LOOKING ROUND.

"How are you? Glad to see you! Come and have a look round," says the gardener when he meets a fellow craftsman. The invitation seems to fall from the lips in a matter of course kind of way, as if it were the most natural thing he could do. Perhaps it is brought about by force of habit, at any rate it is one of the characteristics peculiar to gardeners, the why and wherefore of which it would be difficult, if not impossible, to explain. In every occupation there are habits and customs which seem to pervade the whole fraternity, and by an unwritten law they appear to be confined to the limits of the calling. In the world of horticulture these peculiarities are numerous, and perhaps no one would be more surprised than gardeners themselves if some adept in the art of character study were to portray them and give us an opportunity of "seeing ourselves as others see us." Let us just take one of these characteristics—the gardener's idea of relaxation. Change is necessary for the well-being of all men, for without it the round of everyday life would become monotonous and irksome. It is, however, the gardener's way of spending these little breaks in the daily round that calls for comment.

The idea of most men at holiday times is to get as far away from the associations of business as possible. The Stock Exchange man when he takes his annual vacation abjures even his daily paper, lest his eye, through force of habit, should wander to the columns relating to the money market; the hard-worked barrister throws aside wig and gown, and for the time being forgets parchment and red tape; while the city clerk and shopman forswear even a mention of the daily grind during the period that holidays last. In this respect the gardener differs; holiday would to him be no holiday if he were deprived from talking "shop," and his idea of spending days of relaxation is "looking round" the establishments under the care of brother craftsmen, his own in turn being subject to a similar inspection. Accounts of these visits often find their way into the columns of the Journal, by which the army of readers may note what is going on in other establishments.

Well, everyone to his taste, and a gardener experiences no greater pleasure than inspecting the handiwork of, and having a chat with a brother-in-arms. Not long ago a gentleman sent his gardener on a visit to London, paying his expenses, and telling him to be sure and see all the sights. On his return the generous employer naturally made inquiries as to what our friend had seen. Had he been to Westminster Abbey? Oh, yes. And on questioning the gardener as to what attracted him most there, he was surprised to hear that it was the fine show of bedding in Parliament Square. Another gardener, on visiting the Crystal Palace, thought it was a pity that so much glass should have been wasted in its construction, "as it would have built some grand ranges of greenhouses." These are only small matters, but show how keen is the interest of horticulturists centred in their occupation.

Let us look for a moment at the average gardener at home. Could anything be more enthusiastic and real than the heartiness with which he welcomes a friend in the craft who has called to have "a look round?" He takes the whole situation in at a glance, and after the friendly "How d'ye do?" follows the genial "Come on" as he leads the way through the houses. Then there is an interesting dialogue, and it would be difficult to say which is the more engrossed, guide or visitor—the former telling how he has raised this, or the trouble he has experienced over the growth of that, and so forth; while the former makes eager inquiries as to methods of cultivation adopted with anything that particularly strikes his fancy. Argument, of course, has its place, for in nothing does opinion differ so much as in gardening. One man grows a plant or crop in his own way; his method is successful, and he is prepared to swear by it. Another follows a different system, though the principle of the two may be alike; he also is prepared to stand by his opinion. Hence the argument.

To the casual observer there does not appear to be much consistency in many of our methods, and to the probationer this must often be puzzling. Here is a gardener who makes a speciality of *Malmaison* Carnations—does them really well, and follows the practice of syringing the plants with success. He, of course,

advocates his system, and believes in no other. On the other hand there is a gardener who also grows this beautiful Carnation equally well, but in strict opposition to the syringing system, never on any account allowing the foliage to be moistened. He is equally vehement in his advocacy of his practice, and in condemnation of that of the former grower. It is when "looking round" that argumentative force is brought to bear on each side, the end of it all being that opinions remain much about the same. But which is right? may be the question naturally asked. To all appearance results prove that both are, and the advice is in such cases, and they are by no means few, "Use your own judgment, and follow that which answers best."

As a means of education, nothing is more instructive to the gardener than a "look round" the establishments under the care of others, for the simple reason that there is always something to learn. Here is a gardener who is puzzled over the failure of a particular crop. He tries various ways and means till he has exhausted his own store of knowledge, and still he is unsuccessful. It occurs to him that an acquaintance of his succeeds in growing that with which he fails. Ah! happy thought, he will choose an early opportunity of going to see his friend—"have a look round," and at the same time obtain from him the desired information. By such means one gardener is able to render practical assistance to another in a way that is perfectly understood by the fraternity. There are, of course, seasons for gardening visits, and among Chrysanthemum enthusiasts the flowering period of the autumn queen is the favoured time. Emulated, perhaps, by a spirit of rivalry, and with that desire to know what everyone else has got so common to the craft, "Mum struck" gardeners exchange their friendly visits of inspection and criticism.

Then there is the social feature, or, in other words, that spirit of friendliness so conspicuous amongst gardeners. Perhaps in no other occupation does this exist to a similar extent. Note again "the look round." The visiting gardener notices a particular plant and admires it. "Has he got it?" No, but would like a few cuttings. Certainly, and straightway a few are taken off. Watch him again as he takes his leave; he has quite a burden of cuttings and plants, yet no idea of imposition ever occurs to him, as he knows full well when his friend repays the visit he will return similarly laden. So the feeling is mutual, and one takes a real interest in the well-being of the other. Then in times of adversity the gardener turns for sympathy, and, what is more practical, assistance, to a brother in the calling, and rarely comes away disappointed. The latter is a pleasant and gratifying feature, speaking volumes for the good fellowship that exists.

Keen indeed is the spirit of competition that everywhere exists, yet the enmity common in most trades and professions is markedly absent among gardeners. There appears to be an under-current of good feeling that knits one to another. It is one of the most gratifying phases of the craft, and is particularly noticeable in the hearty welcome extended by the average gardener when you call to have "a look round."—MONOCK.

BARE WALLS.

How seldom do we see the walls of lean-to houses covered with really useful creepers or plants? If it be a vinery Roses sometimes are employed for the purpose, but I have usually noticed they are not very satisfactory, as the temperature necessary for the well-being of the Vines at certain periods of their growth is unsuitable for Roses. Moreover, the laterals of the Vines extending over the roof greatly obstruct both light and sun from the Roses.

Where appreciated there is nothing better for the purpose than the South African Asparagus, *A. plumosus nanus*, or *A. tenuissimus*. The former to the floral decorator is an inestimable aid in almost any kind of arrangement, the sprays having the valuable property of retaining their freshness in water for a week or two. The latter is quite distinct from *A. p. nanus*, and better adapted, perhaps, for entwining around the slender stems of many glass vases than that species. I have found strong thread secured to a peg driven into the border at the base, fastening the other end to the top wire of the roof, one of the best ways of training, the thread being easily withdrawn after cutting.

Polygonum complexum also succeeds well under similar treatment, and is an excellent creeper if it is desired to furnish a wall quickly. (*Smilax*) *Myrsiphyllum asparagoides* is an excellent scandent plant belonging to the Lilyworts, and nearly allied to the genus *Asparagus*, and I have found a wall at the back of the stove or intermediate house answer very well for this species. It requires more heat than can be given in a vinery during the winter. The trailing branches are admirably adapted for dinner-table decoration, or when in bloom for the embellishment of a lady's hair. It should be trained up thread similar to the preceding. *Ficus repens* is well adapted for the purpose on a moist wall, while Maidenhair Ferns have also a very pleasing appearance.—GEORGE HAGON, *Fowley*.

FORCING VEGETABLES.

SEAKALE.

SEAKALE is a very easily forced vegetable, and can be had ready for the table by the first week in December. I prefer the crowns to have a slight frost or two before making a start, though at times this does not take place so early in this mild climate of Devon. Consequently a start must be made to introduce the earliest the first week in November. As a rule the majority of its growth is off by this date, especially if a frost has occurred. In lifting the roots care must be exercised that the crowns are not bruised, and all the tap roots should be broken off and preserved to choose cuttings from. In my case I plant about 1500 early in March, and these are the crowns that are forced the following autumn. The whole batch is lifted about the middle of December and laid in thickly together outdoors, and the crowns just covered with soil. Should severe frost occur, some long litter is placed over them so that they can be readily got at when required. I find the earliest take rather a higher temperature to start them than later lots, say early in the New Year.

A Mushroom house which keeps about 55° to 60° is a very suitable place. The crowns can be placed closely together, and should have sifted leaf soil worked lightly around the roots and up level with the top of the crown; a can of water should be kept there, and the crowns syringed daily. To keep up a succession I put in fifty crowns each week, but the number, of course, can be easily altered more or less according to the requirements of the establishment. The roots can also be forced in large pots or boxes and placed under stages, or any odd corner in a forcing house. These must be covered with pots or boxes, as no light must reach the crowns in any stage of their growth, or blanching will not be perfect. Neither must they be subjected to too much heat at this date (February), 50° to 55° is quite high enough.

The best place to force this vegetable (that is, those who adopt the plan I do and lift all their roots) is to erect a shed-like place about 12 feet long, 8 feet wide, and 4 feet 6 inches high, with twelve posts 5-inch square, four on each side and four in the centre to take the sides and top, rough planks 2 to 3 inches, which should be nailed to those around the sides about 1½ inch apart. The top should be of oak, and rather stouter than the slabs used for the sides, so as to be able to carry the weight of leaves necessary to give the required heat. This little building should have a small door on the south side to get in and out; the other three sides should have from 2 to 3 feet in width of good Oak and Beech leaves if possible placed around it, and the same thickness on the top. The material should be well trodden as the work proceeds. I keep adding to this as the leaves are brought in should the weather be cold; but if mild the first named will be sufficient, though the grower must exercise his own discretion on this point, and see the place does not get too hot. I keep a thermometer hanging up inside, and if, when mild outside, it does not register above 60° all will be well. This heat from leaves is not so drying as from hot-water pipes. Some sifted leaf soil should have been got in readiness and placed inside to plant the roots in. I also keep a can of water and the syringe in here to damp the surroundings when at all dry.

In passing, it may not be out of place to add that there is no better place to bring Rhubarb on than here in this little hut, if I may so term it. Delicious Kale, and Rhubarb as crisp and blanched as it is possible to get them, can be forced here. These details apply to lifted roots only. I now come to forcing crowns as they stand in the open ground. Of course, these are given a much wider berth than those grown and lifted; they should be planted in groups or clumps of three to six, 1 foot apart, with 3 feet or more space between each clump, to allow for Seakale pots and heating material, which should be composed of fresh leaves three parts, the rest of stable litter; this should have been thrown together and mixed before. This must be packed around the pots and above them to the height of 30 to 36 inches. It will take six to eight weeks to get it ready for use this way, and, of course, can be had in by Christmas very well. A few test sticks should be placed in the heating material to ascertain how the heat is. What you have to avoid is too much heat, as the roots soon burn. Plants should be so treated about every three weeks or a month. The decayed leaves should be removed and the soil lightly forked up prior to forcing, the crowns earthed up a little way, and a small quantity of litter placed between them, as I do not consider it as well if the ground gets frozen very much. Excellent heads, and probably a trifle larger than the nine or ten-months-old crowns I have forced for several years past, can be brought on this way, and for several years in succession, but a new plantation should be made every three years or so.

Another method I have seen adopted with fairly good results, where I was once foreman in Herefordshire—a square was allotted to brick pits about 18 feet long by 3 feet 6 inches wide. These were pigeon-holed and were about 5 feet deep, and every alternate one was filled with fermenting material, while the others were planted with three rows of crowns, and were forced three years and then replanted, a part being done each year. Over these crowns span-shaped shutters were placed and long straw litter placed over these, and made secure against frost and wind. This was always ready by Christmas. Success is obtained with each method, but for myself I prefer raising the whole crop and replanting each year. The cuttings are planted 1 foot apart in the row by 18 inches, and given a rich plot. A late supply can be had by leaving a few rows, and banking up with soil before the crowns start to grow. I have seen fine heads obtained by this means.—[Paper read by Mr. J. MAYNE, *Bicton*, at a Meeting of the Devon and Exeter Gardeners' Association.]

(To be continued.)



WEATHER IN LONDON.—On the whole milder weather has prevailed throughout the past seven days. On Thursday it was dull but dry, while during the afternoon of Friday the sun shone brilliantly, though rain fell during the evening, as it did at intervals on Saturday. Sunday was fine; Monday bringing a drizzling rain, clearing towards night. No rain fell on Tuesday, a damp fog hanging over the City during the forenoon. At the time of going to press on Wednesday it was bright.

WEATHER IN THE NORTH.—For a day or two there was a return of frost during the past week, 9° being registered on the morning of the 11th; 11° and 7° following. Thaw set in on Saturday with dense fog and rain generally over the country. Sunday was very wet throughout. On Monday morning there was a slight touch of frost followed by a good dullish day. Tuesday morning was fresh and pleasant, with the thermometer at 43°.—B. D., *S. Perthshire*.

VICTORIAN FRUIT CLASS AT SHREWSBURY.—We understand that a specially large class of sixty dishes of fruit will be provided at the Shrewsbury Show, with prizes of something like £30 and the gold medal of the Worshipful Company of Fruiterers as the first prize; £25 and the silver Knightian medal of the Royal Horticultural Society; and £20, with the silver medal of the Shropshire Society, as the remaining prizes. We do not know the precise terms of the proposed competition, but presume they will be published very shortly.

THE NATIONAL VIOLA SOCIETY.—The first annual general meeting of the members was held on the 10th inst. at Winchester House, Old Broad Street, E.C., when there was a large attendance, Mr. W. Robinson (the President) occupying the chair. A very favourable report of the work carried out by the Society during its first year, together with a balance-sheet showing that the Society had been able to meet all expenses and carry forward a small balance, was adopted. The following officers were re-elected for the ensuing year:—Mr. W. Robinson, President; Dr. Shackleton, Chairman of Committee; Mr. H. A. Needs, Hon. Treasurer; Mr. A. J. Rowberry, Hon. Secretary; while Messrs. C. Jordan of Regent's Park and J. Moorman of Victoria Park were elected to fill two vacancies on the Committee. It was decided, subject to arrangement with the Council of the Royal Botanic Society, to hold a show in the Society's Gardens, and also carry out another trial of Violas and Conference during the coming summer, a sub-Committee having been re-appointed to undertake the work in connection with the latter. It was also decided to publish a report of the proceedings of the Conference, together with particulars of the result of the trial of Violas made last year in the Botanic Gardens, and copies (price 6s. each) may shortly be obtained from Mr. A. J. Rowberry, of The Crescent, South Woodford.

READING GARDENERS' ASSOCIATION.—The fortnightly meeting of the above Association was held on Monday evening, when Mr. Neve presided over a very large attendance of members. The lecture for the evening was "Soils and their Comparative Fertility," by Mr. Douglas A. Gilchrist, B.Sc. Edin. Taking up his subject, the lecturer explained that the fertility of soils might be divided into natural or inherent fertility and artificial fertility. The following were indications of natural fertility. The character of the general vegetation of a district, such as the trees and hedges, for instance, where the Ash is to be found doing well, the soil would be of a generally strong loam and damp subsoils, whilst on chalk and oolite formations the Beech would predominate. A good Thorn hedge showed that the soil was good. The herbage of common land generally indicated whether the soil is fertile or not. Then the colour and character of the soil and subsoil which may be seen at the edge of a ditch give a good indication of natural fertility or otherwise. Soils in order to be fertile must have all the ingredients of a plant food present in a suitable form, they must also be in a suitable condition as far as tilth is concerned. Reference was also made to the great work of the earthworm. Darwin was the first to recognise its value. Although many would consider that the casts caused a great disfigurement to their lawns, yet he could assure them that the worms were greatly improving the soil. Many questions were asked as to soils and manures, and a discussion followed.

AN EARLY WASP.—It might interest your readers to hear that a fine wasp was killed (indoors) on Thursday, February 11th last.—L.

Kew Guild.—The annual general meeting of the Kew Guild will be held in the Lecture Room of the Royal Gardens, Kew (entrance by Melon Yard Gate), on Thursday evening, February 25th, at half-past seven.

FLOWERS FROM THE SCILLY ISLANDS.—On one day last week 22 tons of flowers, in 4205 boxes, arrived at Penzance from the Scilly Islands, and were at once despatched by special train, half of the lot being consigned to London and the rest to Birmingham and the North.

STRIKING CARNATION CUTTINGS.—Mr. Bardney is behind the times. I root 90 per cent. in three weeks, inserting four cuttings round 3-inch pots in a compost of light, sharp soil, plunging these in a bottom heat of 70° to 75°. The cuttings are kept nearly air-tight under a hand-light, shaded according to sun.—BASSIL.

RAINFALL IN THE WEST RIDING.—There have been 2.43 inches rainfall (chiefly melted snow) registered here on the first five days of this month. The heaviest fall in twenty-four hours was on the 5th inst., when 1.16 inch was registered. Owing to the excessive wet, and the hardness of the ground through frost, floods are very prevalent. During January 2.62 inches rain fell on eighteen days.—GEO. SUMMERS, *Sandbeck Park*.

CRYSTAL PALACE—GARDEN SUPERINTENDENT.—Mr. Geo. Caselton has written to us:—"I beg to inform you that I have been engaged as Superintendent of the Garden Department of the Crystal Palace in place of Mr. Head, who has had to resign through ill health." We have also received from the address of Mr. Head the following correction:—"There appears to have been an error in some of the last week's gardening papers in stating that Mr. George Caselton has succeeded Mr. Head, who has resigned his appointment. This is not the case; but owing to Mr. Head's prolonged illness the Directors have deemed it advisable to appoint Mr. Caselton as Deputy during this year."

HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—At a meeting of the above Society, held in the Parish Schoolroom on Tuesday, February 9th, a paper was read by Mr. Geo. Wilson, gardener to Sir James Reckitt, Bart., Swanland Manor, on "Gardening, Past and Present." Our forefathers, he said, sought for knowledge and found it, and we are to a great extent reaping the benefit of their labours, therefore it is our duty to the next generation to take care that our legacy to them is not less than the one bequeathed to us. In fruit and vegetable culture we are not greatly in advance of the past. We have more improved appliances and better varieties, thanks to the untiring perseverance of our hybridists. But in flower and plant growing, also floral decorations, we have made great strides—fashions have changed; and it must be said for gardeners, that as a body they are not slow to acquire the new ideas and fancies of their employers, and endeavour to meet the requirements.—F. L. T.

THE DIAMOND JUBILEE CELEBRATION.—Horticultural proposals in relation to this celebration, associated with public subscriptions, have, beyond what is utterly impracticable, so far been of a purely charitable kind. It does look very much as if horticulture as a great national vocation would be found out in the cold absolutely in the end. I wish to make a practical suggestion in relation to the great fruit show at the Crystal Palace in the autumn, which should be, specially having regard to the event of the year, the greatest and grandest show of fruit ever held there. With a view to commemorate the Queen's long reign to some extent, the Council have arranged for a series of papers to be read on fruit progress, vegetable progress, and market gardening progress during the past sixty years. Nothing could well be more fitting or in harmony with the year's event and the occasion. Now, I should like to see specially invited collections of produce in three classes, conforming to the subjects of the papers; and to certain money prizes, not necessarily large, should be added silver medals, specially struck, to be called the Queen's Diamond Medals, and these be awarded to the respective collections. The only limit placed upon them should be space, which should be rigidly restricted, and they should be such as would exhibit progress in their respective sections. Vegetables have, we know, been tabooed at this great show, but no doubt that difficulty could, for one special purpose, be surmounted. Were a special subscription to this end promoted, we may expect it would be liberally responded to. Certainly the collections and competitions would arouse the greatest interest horticulturally.—A. D.

— GARDENING APPOINTMENT.—Mr. Henry Wilson, for the past three years foreman in the gardens at Benham Park, has been appointed as gardener to Viscount Falmouth, at Mereworth Castle, in succession to Mr. Markham, and enters on his duties on March 6th.

— BIRMINGHAM GARDENERS' ASSOCIATION.—The inaugural spring meeting of this Society was held recently, when Mr. James Deans gave an interesting and attractive lecture on "Ornamental Grasses," illustrated by an exhibition of several of the more useful species, both mounted and for practical use.

— PRUNUS DAVIDIANA.—This is the earliest of the many species of *Prunus* (which are grown for the sake of their flowering qualities) to open its blossoms. The first flowers are now open, February 12th, and if the weather keeps mild the trees in a few days will be a mass of bloom. The flowers are white, about 1 inch in diameter, and produced, as in the Almond and Peach, on the whole of the previous year's growth. Its earliness of flowering, together with its free-growing qualities, makes this Chinese species, with its red flowered variety *P. Davidiana v. rubra*, a plant which should be found in all gardens.—W.

— THE GARDEN OF THE LATE MR. CHARLES JENNER.—Pressure of other matters prevents me from saying more at present about the garden of the late Mr. Jenner than that I had the pleasure of seeing it, and that my copious notes could not be put into shape at the time on account of other things intervening. The garden and its collection were unique, and possibly a few notes on it might be acceptable could I tell of it as it was just after Mr. Jenner's death. I thank Mr. Williamson for his too flattering reference to me. I think he will agree with me in saying that the introducer to the public of "Crimson Rambler" exercised a wise discretion in changing the name from the original one.—S. ARNOTT.

— VARIETY IN NATURE.—Waiting ten minutes for a train last autumn, my companion hazarded that twenty species of plants grew on the high bank facing the station platform. Even my small experience had taught me how lavishly Nature sows her seed, and I put the figure conservatively at fifty; immediately beginning to count, I soon reached the twenty point, but after the thirtieth, progress was slower. Every few seconds, however, new leaf-forms would meet my eye, and when we heard the train whistle in the distance I had counted forty-eight. This was all I could master from the distance of 10 feet, so I stepped across the track and immediately saw two small herbs on this closer scrutiny. This made fifty; then I had to retreat to the getting-on side of the track. Thinking over the rich look of the area we counted from, I would now boldly place my estimate at seventy-five, though I shall probably never have a chance to list and verify my prophecy in that same place.—E. NEWLIN WILLIAMS (in "Meehans' Monthly.")

— HOAR FROST AS AN AIR PURIFIER.—In a memoir by Messrs. Petermann & Graftian, published by the Belgian Academy of Sciences, it is demonstrated that hoar frost is particularly rich in nitrogenous compounds, and therefore plays an important part in adding to the stock of nitrogenous matter in the forest, as well as to the purifying influence that forests exercise on atmospheric air. The frostwork attached to the branches of trees, being continually renewed, presents to the air a large surface for the absorption of all soluble matter that it carries, so that single trees and forests act like immense filters, purifying the air that circulates through them, and collecting from it nitrogenous combinations, which, being returned to the soil by a thaw, serve again as nutriment to plants, and thus re-enter the vital cycle. The amount of frost which the branches hold is often much greater than their own weight, and in a measured cube which touched the extremities of the branches of a given shrub the weight of the frostwork which they held exceeded 1 kilogram for each cubic metre of space. Carrying out this calculation to a forest area, it is quite possible that 7 lbs. of nitrogen are deposited on every acre during a severe frost. When frosts are formed to such an extent as to break branches by their own weight, the quantity of nitrogen given to the soil must be very considerable. It is held, therefore, with good reason, that the frost represents a very appreciable factor in collecting the reserve of nitrogen within forest areas, and if we add to this the nitrogen contained in the rain, the dew, and the fog, we can explain why, without any addition of this material, or without the intervention of those plants which collect it directly from the atmosphere, the forest vegetation is well supplied with nitrogen. These facts also show, says a contemporary, how the soil of forest areas grows richer in this element which is given to it by the detritus, or waste, of woodlands.

— LIVERPOOL HORTICULTURAL ASSOCIATION.—On Saturday evening the fifth lecture of the season was delivered by Mr. H. Ranger of Messrs. Kerr & Son's Aigburth Nursery, his subject being "*Hippeastrum* or *Amaryllis*." Mr. T. White presided. As might have been expected the lecturer gave a thorough insight into its early history, dealing with the labours of Linnæus, Dean Herbert, Hooper, James Douglas, and H. Veitch. An interesting *resumé* on the early hybridising of the various species up to the gorgeous flowers of the present time was admirably given, as was also their culture, several handsome specimens being used as illustrations, showing with proper treatment the long period over which these handsome flowering bulbs may be prolonged. A pleasant discussion followed.

— A PROLIFIC HYACINTH.—Mr. Bardney writes:—"When at Norris Green, Liverpool, I grew thousands of Dutch Hyacinths, but we grow none here. The 'missus' and my daughter made up their minds they would have some, so the old glasses that had been stored away for years were brought out and some bulbs obtained, I think begged. They certainly have succeeded in a good display, a bit overforced, but they are exceedingly proud of their achievements, and claim to have 'beaten' me at last. One is certainly a profusion of bloom, and I never remember having seen one like it before. It has no less than six spikes—if it had been grown in a pot it would have made an exceedingly fine display. The central spike is good, and the five others issue practically altogether from one side of the bulb, having apparently no connection with the centre."

— THINNING APPLES.—Mr. S. D. Willard, at the meeting of the Ohio State Horticultural Society, spoke of an interesting experiment tried at Geneva last year. An orchard of Greening, Baldwin, and Hubbardston Apples was thinned on some of the rows so that an Apple was left every 4 inches, and on others so that there was only an Apple for every 6 inches. On the trees where no thinning whatever was done the Apples were small and hardly coloured; the Apples on the trees thinned to 4 inches apart were coloured well and of fair size, but no buds formed for the next season. On trees thinned to fruit 6 inches apart the Apples were large and so finely coloured as to attract the attention of passers on the road several rods away. Besides this there were well grown fruit buds for next year, so that, if nothing prevents, the trees will bear two seasons in succession.—("Garden and Forest.")

ROYAL HORTICULTURAL SOCIETY

SCIENTIFIC COMMITTEE—Present: Dr. M. T. Masters (in the chair); Rev. W. Wilks, Mr. Shea, Mr. McLachlan, and Rev. G. Henslow, Hon. Sec.

Coniferous Woods.—Dr. Masters exhibited specimens of Deodar, Larch, and Cedar of Lebanon grown by Mr. J. Simpson at Wharnccliffe. They were said to have been planted at the same time, about thirty years ago. It was remarkable that the heart wood of the Larch and Deodar were much alike, while that of the Cedar was different in not being so darkly coloured like the others. The quality was in each case good, especially that of the Larch. It has been observed by Dr. Tristram that the wood of the Cedars grown on Mount Lebanon is much closer in grain and darker in colour than that of trees grown in England ("The Nat. Hist. of the Bible," p. 343).

Species of Thuya.—Dr. Masters also exhibited specimens illustrative of confusion in the nomenclature of this genus. He observed that *T. occidentalis* grows in the Atlantic States of North America, and *T. gigantea* (Lobbi) on the north-western or Pacific side. A form originally named *T. plicata* was introduced at the end of the last century by Menzies from Vancouver. In Donn's "Catalogue of the Plants of the Botanic Gardens at Cambridge" this plant is recorded but without description. As this is a western species it is really synonymous with, or at most a variety of *T. gigantea*. But the original *T. plicata* having probably died out, the name *plicata* has now become transferred to a form or variety of *T. occidentalis* from the Atlantic side of the United States. It is probable that both species are represented by a "*plicata*" variety; but it is not certain whether the Pacific variety is now in cultivation. Specimens of the original *plicata* from Vancouver are in the Herbarium of the British Museum, so that it is a question whether, strictly speaking, the name *T. gigantea* should not be superseded by that of *T. plicata*. The plant now bearing that name should then be called *T. occidentalis* var. *plicata*.

AWARDS, FEBRUARY 9TH.—By an oversight the medals granted for exhibits at the meeting held on this date from our last issue. They were:—Floral Committee: Silver-gilt Flora, Messrs. H. Cannell & Sons, Swanley, Primulas; silver Flora, Messrs. J. Peed & Sons, Norwood, plants, and Mr. C. Turner, Slough, Cyclamens; silver Banksian, Mr. G. Wythes, Syon, hardy plants in pots, and Messrs. J. Laing & Sons, plants; bronze Banksian, P. Purnell, Esq., Streatham, Daffodils. Orchid Committee: Silver Flora, Messrs. J. Veitch & Sons, Ltd., Chelsea; silver Banksian, Messrs. H. Low & Co., Clapton; F. Sander & Co., St. Albans; L. Linden, Brussels.



MILTONIA ROEZLI.

WHILE plenty of small bits of this beautiful Orchid are to be seen it is seldom one comes across really well grown healthy specimens of large size. This is a great pity, for they are extremely beautiful when in flower. It is not so easy as many of the genus to cultivate, and the fact of a grower having produced specimens, say in pans a foot across, and well furnished to boot, is ample evidence of care and skill beyond the ordinary. Such plants I had the pleasure of inspecting recently, and though the blossoms were not all open, yet enough to show the beauty of the plants when so grown were expanded.

Individually the blossoms of *O. Roezli* are about 3 inches across, the typical form being pure white in ground colour, with a purple centre, and a little yellow about the crest. The variety *alba* has no purple markings, but simply the yellow on the crest of the lip; a chaste and lovely flower. The spikes proceed from the sheathing bases of the leaves, are erect, or slightly arching, according to their length, and each bears from three to six blossoms. The plant has a clustered habit of growth, and the rounded compressed pseudo-bulbs are almost hidden in the sheathing bases of the grey-green leaves. The roots call for no special comment, being similar to *M. vexillaria* and others, but all in this section have a great aversion to anything close or heavy about them.

This being so the greatest care must be taken in the preparation of the compost, and bearing on this is a fact that ought never to be lost sight of by those who wish to grow Orchids well, namely, that inferior material—at no matter how low a figure it may be offered—is much dearer in the long run than good stuff at a fair price. Peat, for instance, of the quality required for Orchid culture, is not obtainable everywhere, and those dealers who have choice cuts naturally make the best market they can of them. The small amount of waste in using this compared with the other class is an important point, but a still more important one is that in the one valuable plants will, if well treated in other ways, increase in value; in the other there is great risk of losing them altogether.

As a basis of the compost required for *M. Roezli*, nothing but good fibry peat and clean freshly gathered sphagnum moss is necessary; but as this, from its nature, would hold too much moisture and get into a very close condition, a free addition of finely broken crocks and charcoal must be made to it. Whether these are mixed with the other ingredients or added as potting proceeds is immaterial, some growers preferring one way, some the other; but if they are kept separate until the compost is being used it saves waste to a certain extent, and insures a more uniform mixture if this term can be allowed.

The best time to repot is when a flush of young roots from the forming pseudo-bulbs is imminent, generally when about half grown, this giving the plants a direct hold upon the new material. It may be taken as a general rule that the plants require repotting once in two years, the removal of a little of the surface and replacing with new compost sufficing for the intervening season. Disturb the plants no more than is absolutely necessary; but it is better to dislodge every root, even to wash them entirely clear of compost, than to return any sour or decayed material into the new pots. Drainage is an important item, and if the ordinary make of pots are used these must be filled quite two-thirds of their depth with clean crocks.

Perhaps more suitable are the shallow pans, pierced for suspending, and these must be quite half filled or a little over. Cover with a film of rough moss, and fix the plants firmly with the dibber. The base of the leading bulbs must be kept above the rim, and a neat cone-shaped mound of compost will receive them. Trim off all ragged ends of compost, carefully avoiding the young growths, with the scissors or shears, and replace the plants with as little delay as possible into their growing quarters. A position not far from the roof glass in a moist and well heated situation should be chosen for them, and they need only be shaded sufficiently to prevent injury to the foliage.

Last season I saw in a well-known collection a batch of this species plunged alongside a fine lot of *Vanda teres* in a totally unshaded end of a warm structure, and the conditions apparently suited them well. Until the roots are beginning to work freely after disturbance water very carefully, but keep the atmosphere very moist. At all other times the plants delight in copious supplies of water to the roots. Often when suspended from the

roof as described, the plants will take water daily, small ones of course needing it oftener than larger ones owing to the limited capacity of the receptacle wherein they are grown.

Perhaps the most frequent of all causes of failure is the attacks of thrips, to which *C. Roezli* is so subject. These insects of course are in evidence on many other Orchids, but they seem to quite paralyse the system of this species, and unless instant means of suppression are taken when they are first seen the plants will soon be entirely overrun, when their doom may be said to be sealed. I have often described the best means of destroying these insects by fumigation and sponging, so need say no more on that head at present; only give them no quarter. If the insects return after apparent destruction repeat the dose until the plants are really clean. *M. Roezli* is a native of New Grenada, and was introduced to this country in 1873.—H. R. R.

FLOWERING TREES AND SHRUBS.

DECIDUOUS.

BRITISH gardening has many phases, each interesting and enjoyable in its own particular way. Some of these are at times suddenly lifted to a pedestal of prominence by the ever changing tide of fashion; then after a brief—or it may be an extended—period of popularity the favoured aspect of our “gentle art” drops back into obscurity, often leaving but little trace behind to mark its reign of splendour. The above remarks are especially true in regard to the various styles of bedding which have at different periods been in vogue in our gardens, and of the numerous kinds of florists’ flowers so largely cultivated long ago, but which have left no trace behind save the memory of them.

Happily, however, there are other aspects of gardening in which the work of one generation descends to future ones as a priceless blessing, and forms a fitting monument to the foresight and skill of the grand old gardeners of the past. Many fine specimens of *Coniferae* and other trees which have made the gardens of Britain famous show how important a branch of horticulture arboriculture was then considered, and the many splendidly laid out grounds around stately mansions show that at least a few among the gardeners of the past possessed fine ideas upon that branch of their art. There still remains, however, one way of adding beauty to gardens of all descriptions which has not received the amount of attention it deserves, I refer to the planting of flowering trees and shrubs.

Much is being done in this direction in some modern gardens, but there are yet too many large masses of common evergreens planted without any attempt being made to render them attractive at various seasons by the aid of easily grown flowering trees. During recent years so many gems of this description have been introduced to this country, that there is variety enough to suit all tastes. Old time gardens had but a comparatively limited stock of materials to select from, and this perhaps accounts for the dearth of showy trees which many ancient gardens exhibit. This gives the present generation a splendid opportunity of enhancing the beauty of many a fine demesne by supplying the deficiency. The work may be easily done by planting masses at well chosen points in the foreground of shrubberies or belts of trees, and in some instances removing old and unsightly ones, to afford space for more attractive kinds.

Details about planting I hope to treat of in a subsequent article. I will therefore now proceed to give a concise description of some of the most useful and beautiful flowering trees and shrubs that I am acquainted with. Fortunately the noble family I have the honour to serve take great interest in these matters, and are constantly adding new species and varieties to the fine collection brought together by their ancestors, which collection is greatly admired by the many thousands of visitors who flock to Warwick Castle.

Alnus glutinosa aurea, the Golden Alder, is well worthy of a place in gardens where large shrubberies abound, as it forms a handsome bush, both leaves and flowers being attractive when growing in a sunny position. It thrives well on dry banks where many other shrubs do not, and on that account is especially useful, as there is often a difficulty in getting a bright bit of colour on steep banks where the soil is shallow.

Amelanchiers, or Snowy Mespilus, comprise several pretty spring flowering shrubs, which are easily grown in any fairly rich soil, and are readily propagated by cuttings in the autumn. *A. canadensis* (the Canadian Pear) is one of the most showy; it produces a wealth of white flowers in April, and seldom attains a height of more than 6 or 7 feet. In autumn the foliage is usually very attractive. *A. vulgaris* is also well worth growing on account of the freedom with which its white flowers are produced.

Amygdalus (Almond).—No class of flowering trees are more

generally admired than the Almonds. This is probably because they have so many good qualities. When in flower a well-grown specimen presents a sight that lingers in the memory, for each shoot is completely studded with delicate and attractive blossoms. Such a sight would in the month of May assuredly arrest attention; but when we consider that they usually flower in March it requires but little imagination to understand their great value.

A. communis is an old and well-known species, which forms a large handsome tree, and is well adapted for planting at wide distances apart in shrubberies, to give seasonable colouring. *A. communis amara* (Bitter Almond) bears larger flowers, rather paler in colour than the first named. *A. c. dulcis* (Sweet) usually

grows freely, and is the most attractive deciduous *Berberis* that I know. *Calycanthus* (American Allspice), *C. floridus*, and *C. occidentalis* are desirable shrubs to grow on account of the delicious scent their quaint flowers emit. A rich light or peaty soil suits them well. The positions ought to be well drained, and peat or leaf soil freely incorporated with the natural soil if this is heavy.

One has only to visit the Cherry orchards of some fruit-growing county when the trees are in flower, to form an idea of the great value of *Cerasus* for garden ornamentation, and yet many of the varieties grown for the latter purpose greatly exceed in beauty those to be met with in fruit orchards. The following are some of the best varieties for garden culture—*C. Mahaleb*, white, height



FIG 31—*CERASUS PSEUDO-CERASUS*.

flowers slightly in advance of both, and the flowers though smaller are of an attractive red colour. *Pendula* and *purpurea* are two good forms of *dulcis*. On account of the early date at which those already enumerated flower, a somewhat sheltered position should if possible be selected for them.

In the several varieties of *A. persica flore-pleno* we have a delightful race of dwarf free-flowering shrubs, suitable alike for pot culture, or for planting on banks or in the foreground of shrubberies. If grown in the form of standards they ought not to be planted among strong-growing shrubs, as they do not make rapid progress. Crimson, rose, and white forms may be obtained. *Amygdalus persica magnifica*, which received the award of a first-class certificate from the Royal Horticultural Society in February, 1894, is the most attractive of the dwarf semi-double varieties.

Berberis vulgaris is too well known to need description, but it is well worth growing. *B. Thunbergi* is a comparatively recent introduction, having beautiful lemon yellow drooping flowers. It

10 feet; *C. Padas* (Bird Cherry), 20 to 30 feet; *C. serrulata* (double Chinese Cherry), very handsome and showy flowers, white tinted with rose, height 10 to 15 feet; *C. sinensis pendula rosea*, very attractive in colour; and *C. pseudo-cerasus* (fig. 31) is a very beautiful variety that was staged at the Drill Hall, last spring, by Messrs. J. Veitch & Sons, Ltd., and received an award of merit. The flowers are large, and delicate blush white in colour.

Cercis siliquastrum (Judas Tree) and *Chimonanthus fragrans* are two somewhat peculiar yet attractive shrubs that ought to be grown in every large garden, not perhaps in quantity, but to give variety. The first named flowers during the summer months, and the latter in January or February. In cold districts both should be given the shelter of a wall. Then what have we more charming than *Pyrus Malus floribunda* and *P. spectabile*?

The month of May, with its tender leaves and wealth of flowers in England owes much of its charm to the profusion of Hawthorn trees and bushes in full bloom. We meet with them on all sides,

in the woods and hedges as well as in gardens; their flower-wreathed branches and shapely outlines are pictures of perfect beauty. With the exception of *C. pyracantha*—which produces bright scarlet berries, and is extremely useful for covering walls and buildings—the *Crataegus* grown in gardens are varieties of *C. oxyacantha*. Some of the best are *C. coccinea plena* (Paul's double variety), *C. foliis argenteis*, *C. multiplex*, *C. præcox* (Glastonbury Thorn), *C. punicea* (scarlet-flowering), *C. flore-pleno* (double red), *C. rosea* (pink flowering) and *C. semperflorens*. Hawthorns are usually planted in the form of standards, but as bushes they are also extremely attractive, and wherever they are planted, on the banks of a lake or river, I strongly advise that the bush form be selected.

In my schoolboy days I claimed a strip of garden of my own, in which, growing against a wall, was a fine old plant of *Cydonia japonica*. It received but little attention in the way of pruning, and invariably flowered splendidly each year. When in full beauty my firm conviction was that no garden in our neighbourhood could show anything more lovely at that season; perhaps I was right, for it certainly is one of the "gems" among spring flowering shrubs, suitable alike for growing against a wall or as a bush in an isolated position. *C. Maulei* is a more recent introduction which bears bright red flowers, slightly smaller than those of *japonica*. The habit of growth is also more compact. Other good varieties are *C. coccinea*, *C. flore-pleno*, and *C. rosea*.—H. DUNKIN, *Castle Gardens, Warwick*.

(To be continued.)

A GARDEN IN THE ISLE OF WIGHT.

[An Address (amplified) by Rev. H. EWBANK to the members of the Horticultural Association at Newport.]

(Continued from page 98.)

Now we come to the most delightful season of the year, when the cuckoo is heard and the nightingale sings, and when Irises blossom, not by twos and threes, but in large companies. They are my favourites among all the flowers of the year. Their hues are so varied and delicate; their shapes so fantastic; the contrasts which abound are so bold and striking; the foliage is so pleasant that an Iris garden always has the highest attractions for me. Dr. Foster, the Professor of Physiology at Cambridge, is the greatest authority about Irises, and at one time and another he has been very kind in giving me help. If an Iris has a fault it can only be found in the fact that its blossom is so very fugacious. Mr. Caparn tells us that "the majority of Iris blooms have a three-days span of existence," and that one of them, "*Iris sisyrinchium*, blooms from midday to three o'clock, when, worn out with old age, it curls and dies." Irises, he says, inhabit the temperate regions of the earth. "There is no meridian of longitude in the land of our northern temperate zone untenanted by an Iris. In latitude the greatest abundance appears towards the warm temperate region of 40°, while they rapidly thin out below 30° or beyond 60°."

There are two English species (*foetidissima* and *Pseudacorus*); France has ten species; Portugal and Spain contribute some bulbous ones; Germany, Hungary, South Russia, and Turkey add to the list. Some few are found in America, a few in China and Japan, but the best of all the Irises are those which come from Asia Minor, Palestine, and Central Asia itself. The groups are divided, according to Mr. Baker, by "the varying characters of the very conspicuous raised line running along the middle of the outer or drooping petal-fall of the flower. In the two groups of bulbous and beardless this line is a raised or convex ridge. In two other groups there is more or less thick line of hair-like bristles. In a fifth the ridge of hair is spread out into a broad flat cushion. A sixth section has the line produced into a crest or comb, cut and frilled very much in the same manner as a cock's." "The Iris is an historical flower, and after the battle of Crecy was united with the arms of England, and remained so until in the union with Ireland the Shamrock took its place. Strangely enough a fleur de lis exactly like that of the emblem of the French monarchy was found surmounting a sceptre in a monument at Dendara in the heart of Egypt."

I can only just mention some two or three species. *Iris florentina*, which is the emblem of the French monarchy, is a most beautiful flower; its colour is white, just tinged with lavender. *Iris aurea* is from the Himalayas, and of a bright golden yellow. *Iris pallida dalmatica* is very large and fragrant; it comes from Southern Europe and Western Asia. *Iris spuria* is also from Southern Europe, and very much to be admired.

But best of all, the most striking among all the flowers of this earth, I hold the *Oncocyclus* section to be. They are, however, very difficult to grow, and afford a most delightful puzzle to those who take any interest in them. They come from the plains of Asia—from the northern regions of Palestine, from the fastnesses of the Caucasus, from Persia, and other places. Some few were introduced by a botanist who accompanied the Russian armies into Asia, and who forwarded them to Dr. Regel at St. Petersburg, by whom they were distributed to Herr Max Leichtlin and others. They certainly are, to my mind, the most fascinating of all flowers, and of a very aristocratic appearance and of extraordinary shapes; the tracing on the petals is exquisitely delicate. The contrasts which they offer are bold in the extreme. Some of them have a very silvery hue, and there is often a transparency about them which

greatly adds to the general effect. The blossom is very large, and out of all proportion to the size of the plant; the leaves are narrow and sickle shaped.

The habit of these Irises in their own homes is so utterly out of harmony with anything which they find here that there must be contrivance if they are ever to do well at all. Mr. Selfe Leonard has well observed "That, on the one hand, it can scarcely be that the requirements cannot be imitated in this climate, albeit that the right method may prove to be disagreeably elaborate and artificial," for it is difficult to see how anyone can expect to accommodate these denizens of the East with what they want unless there be some manœuvring for it. If it can be done at all surely that is enough for all practical purposes, and if their desires are to be hit off we must follow their bidding. I wrote some time ago to Max Leichtlin of Baden-Baden, who is the most eminent horticulturist of the day, for instruction on this matter. His answer was, "I often had importations of these *Oncocyclus*, and wherever anything did adhere to the roots it was hard ferruginous clay. This in winter and spring is covered with snow; when melting the snow is reduced to pulp for some weeks. After this summer begins, and occasional thunderstorms and rains keep the soil provided with some moisture. In summer it gradually dries and becomes as hard as a brick, and keeps the roots warm and dry."

"In ordinary winters the dryness in Asia Minor goes on till middle or end of November, then come a few showers, and soon after snowstorms." I had to translate this into the practice of horticulture—and let me say there are two ways of growing these Irises, one is of taking them up and keeping them dry for months, but this is a barbarous method, for it lacerates and injures the roots; in such a country, however, as Holland it is inevitable, because the subsoil is always so full of water. The other method I will try to describe to you, and to it I adhere. You will see at once how different the surroundings of these Irises are in their own country from anything they get here. There is a great gush of water when the hard frost breaks up, and then they are dry for the summer months, and become utterly baked; if they are kept green, and have no rest in summer, there will be no blossom in the succeeding year. The difficulty, therefore, is to account for their peculiarities; so, to copy their natural surroundings as to coax these plants into flowering, they must be put under glass for a time, for there is no other way of keeping them quite dry in summer, and this is not enough, because of the moisture which rises up from below—very little sets an Iris growing.

I have found that a platform about 8 inches below the soil made of old paving stones with interstices to let the water off is a good thing. If the drainage is not good—if there is the slightest stagnation—there is sure to be a good deal of damage at once, and then I raise the beds about 4 inches above the surrounding level, so that the water may in great measure trickle off from them. There must also be good ventilation; but in winter there must still be a sufficiency of moisture, so that the Irises may be able to grow. In this sort of way I have succeeded in blossoming nearly every one of these *Oncocyclus* Irises, and I have now about 700 of them, which look as prosperous and happy as they well can do. I will close this brief notice of *Oncocyclus* Irises by quoting an opinion or two of Prof. Michael Foster regarding them. He says about *Iris Gatesi*, "To my mind, this Iris, when seen at its best, with standards and falls fully unfolded, and its delicate tint not yet marred by bruises, raindrops, or the beginnings of witherings, is of surpassing grace and beauty." About *I. paradoxa* he writes:—"The total effect of the flower is very striking, and, unless an element of grotesqueness be thought inconsistent with beauty, very beautiful." About a variety of *Irisiberica* which he got from Kurdistan, he says, "It is one of the most lovely flowers I know." See "Garden," February 18th, 1893. And Mr. Caparn is of the same mind when he says, "April and May, with those happy people who can grow the *Oncocyclus* group of Irises, is the cream of the whole year." See *Journal of Royal Horticultural Society*, August, 1896.

A few words must now be given to the Rose, though with such rosarians in the island as Messrs. Jeans and Spittall, they need not be many. My friend Mr. William Paul has said that "throughout the civilised world undisputed precedence among flowers is given to the Rose. In the sacred writings, by classical authors, by poets of all countries, including our own Chaucer downwards, this queen of flowers is an epitome of beauty and fragrance. It has often been the subject of scientific monographs and floricultural disquisitions, and its cultivation affords employment to thousands of human beings for the manufacture of rose water and attar. To take only one instance of the great store set upon it, if there is any period of the world's history when flowers engrossed too much the attention of a nation it was under the reigns of Augustus and subsequent Emperors of Rome. The love of flowers was then carried to excess, and the Rose seemed to bear away the palm from all."

"It was customary for the wealthy inhabitants to take their meals resting on Rose leaves, a practice which Cicero loudly condemns. Roses were scattered upon the beds and floors of the chambers of their guests. In times of public rejoicing the sheets were strewn with flowers, and the statues of the deities were adorned with crowns and garlands of Roses. Suetonius relates of the Emperor Nero that he spent four millions of sesterces, £30,000, in procuring Roses for one feast." Of this, however, enough. One can only think what a glorious time it must have been for the Messrs. Paul and Cant of those days.

I have given this encomium at length, because its glowing terms can hardly be exceeded, and no lover of Roses could wish for anything more; but I do not intend to dwell myself upon the queen of flowers, one reason being that it is an interminable subject, and I have no room left for it; another reason being that it has been already exhaustively handled by those who are much more competent to touch it than I profess to be. I will merely give the names of a few species which are

grown in this garden, and which are not commonly met with, and I will add a few passing remarks. In chapter xvi. of his "Notes in a Gloucestershire Garden," Canon Ellacombe has given us a very interesting account of Roses.

The first that I would mention is *Rosa berberidifolia*, otherwise called *R. simplicifolia*. It is a native of Northern Persia, and the desert of Songari in Chinese Tartary, and has baffled the attentions of many a gardener until now. I should think that Dr. Lindley must almost have lost his temper over it, and it must have been like a good riddance of bad rubbish in his eyes when it ceased to try him so much. As a last resort he prescribes a saline draught for it, much in the way that a black draught may be prescribed for a very recalcitrant patient, partly to punish him, and partly to do him good. All, however, that I have to say about the matter is this—and I consider it to be greatly to the credit of the climate of the Isle of Wight that it is so. *Rosa berberidifolia* has not caused me the slightest anxiety since it came into my hands. It was most kindly given to me at Kew some five or six years ago, and it took to this place at once without the least intention of leaving it. I know that at Salisbury the same Rose covered itself with blossom, and then it was so surprised with its effort that it expired upon the spot; but mine has not had an experience of that sort at all. My Rose has grown to a large size, and if it were left quite alone it would be advancing all over the bed where it is situated, but it has not made any great advertisement of itself. It has blossomed in a restrained and gentle way, and I think modesty will meet with its proper reward; but if it should ever be otherwise, and self-assertion should get the better of the plant, I believe I shall then be safe, for my Rose has laid its foundations deep, not only in one spot but in several, by sending out suckers on every side. But I know that I can only rejoice with trembling about this matter, although I give what has occurred up to date.

The winter, however, of 1894-5 was surely a pretty good test, and a very simple glass cover about the size of a dog kennel was even then protection enough. The flowers of *Rosa berberidifolia* are solitary, cup-shaped, and the petals are of a deep yellow with a crimson spot at their base. The leaves are sessile, erect, narrow, obovate, &c. Altogether it looks more like a *Cistus* than anything else at a little distance, and Dr. Lindley is abundantly justified when he speaks of it as a "lovely plant." The next Rose I would mention is *Rosa gigantea*, and here I can only speak of a very qualified success, if, indeed, it be success at all. *Rosa gigantea* seemed very happy against a wall for a long time, but what Burmese flower or tree could have stood up against that terrible ordeal of 1894-5? All I can say is that it did its very best to get through it. I lovingly covered it, tended it, helped it through days and nights of bitter frost and cold, and so well did it seem to me to be getting on that when the great frost had passed by I quite imagined that my Rose was safe, and the bitterness of death had been escaped; but it was not so at all, for it had been somehow fatally smitten, and it passed away with a smile, I might almost say, on its face in the spring.

But that experience has, I quite believe, put *Rosa gigantea* into my hands, it made such a good fight for life that I think it will conquer next time. Let us hope that we shall never have such a long frost again as that of 1894-5, and I have found a rather warmer spot for the glorious specimen which I at present possess, and which promises great things. *Rosa gigantea* was discovered in Upper Burmah by General Collett in 1888. It is a pure white single Rose, and 6 inches across the petals. I am vastly indebted to the Director of Kew Gardens for so kindly letting me have a second chance with it.

Rosa Wichuriana, I believe, comes from China. I am told that it blossoms abundantly. It has deep green shining evergreen foliage, and is well adapted to a rockery, as it falls over the stones in a graceful manner. *Rosa minutifolia* is the latest acquisition of all. It only came into my hands about ten days ago. Dr. Engelmann wrote this from California about it to Mr. Thompson of Ipswich, from whom I had it: "You will see that this Rose will make a sensation in Rose circles if only if can be got to England alive. It forms bushy plants, with very slender stems, thickly set with minute spines, and varying in length, and furnished with delicate foliage and two pairs of pinnae, and a terminal odd one, each leaflet being a quarter to one-third of an inch in length, broadly oval and sharply toothed, and strongly veined." I give this description at length, because it is a new plant. At present it is in my greenhouse, and it is an open question as to whether I shall ever dare to plant it in the ground at all. One thing may be predicated about it for certain. It will never make the sensation which Dr. Engelmann looks for; it is much too pretty for that. A few names must end this short notice of Roses which are under my care. *R. bracteata*, *R. rubrifolia*, *R. rugosa*, *R. lucida*, *R. indica*, *R. ferox*, and others too are all doing well here. *R. viridiflora* is one of the few flowers that must be called positively ugly.

Lilies, with one exception, I must leave severely alone—for I have to be in St. John's Church to-morrow morning at eleven o'clock. Last spring an officer in Burmah (Captain Grant) sent me a box full of bulbs, of which I gave away some and potted the rest, putting them in cocoa fibre under a north wall, &c. As soon as they started I planted them out in a *Rhododendron* bed in peaty soil. All through the summer they grew in a languid way, if they grew at all. I thought nothing would come of them, and I went on the Continent for seven or eight weeks. On my return I was greeted with one of the most glorious apparitions I have ever beheld. Several large heads of *Lilium Lowi* were in full blossom towards the end of October. The blossoms were large, funnel shaped, yellow, with blotches of yellow on them, and altogether among the finest flowers of the year. I suppose the sudden deluge of rain in September suited them, after the great heat in the summer.

(To be continued.)



NATIONAL CHRYSANTHEMUM SOCIETY.

ON Monday evening last the Committee of this Society held a meeting at Anderton's Hotel, Fleet Street, Mr. B. Wynne occupying the chair. Proofs of the photograph of the medal awarded to the Society for its exhibit at the Ghent show were submitted and approved of preparatory to the same being presented to the members who contributed the blooms. Some discussion arose on the subject of the new regulation that the Floral Committee should in future meet at three o'clock in the afternoon, and that resolution was upheld.

A great part of the evening was occupied with considering the draft report, financial statement, and new elections to be laid before the annual meeting on Monday next, when Mr. R. Ballantine is expected to preside. New members were elected, and societies at Tonbridge, Warringham, and Penzance were admitted in affiliation.

GOOD KEEPING VARIETIES.

THROUGH force of circumstances I have had an exceptional opportunity of testing the keeping qualities of some varieties of Chrysanthemums this season, and I thought a note on the subject may be of some interest to your readers. Through a delay in the erection of a greenhouse I was compelled to keep about 150 plants that had been treated on the cut-down system out of doors under the protection of a north-east wall until the end of October. I intended keeping what I could for Christmas decoration. The lean-to house in which they were subsequently placed faced nearly east, with front and back ventilation, and had no artificial heat whatever. By the end of November some very fair flowers were developing, and as the season was exceptionally wet and dull, with an occasional frost, I felt the chance of keeping any under the circumstances very remote. Still, as an object lesson I was determined that all should take their chance without any extra precaution whatever, only in ventilation.

By about the first week in December I found Madame Carnot the first to go, showing the susceptibility to injury by damp and cold. Six plants bearing six flowers each, only about three parts developed, went evenly spotted all over. Vivian Morel and Chas. Davis also soon went. Louise, and some finely developed Rose Wynne, Col. Chase, Col. W. B. Smith, H. L. Sunderbruck, Mons. Pankoucke, and Good Gracious was the next to go in the same way—evenly spotted over all the florets at first, then a gradual rot and decay. For Christmas I was able to use the following varieties in good condition, grown in the same house, and under the same conditions as the foregoing.

Souvenir de Petite Amie.—This was solid, clean, and good; a first-rate keeper. Directeur Tisserand, Niveus, Mrs. C. E. Shea, this I think will turn out a capital late variety. Mons. Chas. Molin, a very good keeper. President Armand, Phœbus, M. Chenon de Lecbe, Golden Gate, also an excellent late variety. Incendrie and Richard Dean, Emily Silsbury, and Edith Tabor withstood the damping, but became tinged earlier than the foregoing. Of the incurved varieties Chas. Curtis kept well, also James Agate, Robert Petfield, and Baron Hirsch were the only other varieties of a small collection that kept fit for use.

I do not intend to convey that all the foregoing are naturally late varieties, but they are good keepers when grown for late work. Mons. Georges Biron, Golden Gate, Mrs. C. E. Shea, and Duchess of York are naturally late with me. I regard Mrs. C. E. Shea as a good late variety to grow for market purposes, also Souvenir de Petite Amie, and Mons. Chas. Molin, are exceptionally good keepers.—C. ORCHARD, *Bembriège, I.W.*

GREEN AND WHITE CUCUMBERS.

IN a former number of the *Journal of Horticulture* (May 7th, 1896) I described the cultivation of plants of the white Cucumber, and the production by one of them of green fruit. I stated further that the seed of the green Cucumber should be cultivated. This has been done, and the result I now communicate to you.

Four plants obtained from the seed of that Cucumber were set out for observation. They grew fairly well, though the season was unfavourable, and they bore only green fruit. The result seems to show that the white variety has but a temporary existence in comparison with the green kind, for at the end of ten years one of the seeds, as we see, reverts to the green type, and probably many others would have undergone the same change if all the seeds of a whole Cucumber had been planted. It also seems to show that the green Cucumber is the parent form, from which the white springs as a variety or sport of nature.

The existence of the white fruit is very rare in England, being unknown to most people I find, but in France it is by no means uncommon. I have been informed by Mr. Bunyard, the well-known horticulturist of Maidstone, that a white Cucumber (albino) occasionally springs from seed delivered as green in this country from France, and that the French seedsmen offer to supply you with mixed white and green Cucumber seeds, or with seeds of the white sort alone. This difference in the two countries is very remarkable. The common supposition that this colour change is due to the crossing of the one kind

with the pollen of the other does not appear to me to explain Nature's work. A somewhat similar change is observed in the production of flowers, both coloured and variegated, from the same seeds without artificial crossing or impregnation with pollen.—GEO. VINER ELLIS.

THE POTATO IN PERFECTION.

I AM happy to detail my experience of Potato cookery on this side of the Channel, in response to "J. E.'s" note of interrogation on page 115. Possibly we are not, as a people, so accomplished in the matter as he infers, from reasons to be shown; but, however that may be, Ireland should certainly, from the prominent part the Potato has so long played in its food economy, lead the way in cooking the esculent tuber. In the first place, those portions of the island where the Potato is practically the staple food, have, from its deterioration by continued cropping on "sick" ground, the employment of the refuse as seed, and other causes, ably expounded at our recent tercentenary, left good cooking results out of the question where we might reasonably expect to find the best examples of the simple culinary art practised. Hence, unfortunately, the Potato in perfection is rarely to be met with.

I fear also, in spite of our sympathetic friend's praise, that many visitors to Dublin, if their visit is confined to the "cardrivingest" city, may be disappointed at the way, if not in the quality, of the Potatoes served by those who cater for the public. One first-class restaurant, indeed, which is in the hands of a gentleman well known as an accomplished amateur gardener, gives all the attention to the matter it deserves, and one will there find served with their *pièce de résistance* a brace of Sutton's Main Crop in their jackets, satisfying in all points. But, again, we as a race do not favour a long kidney shaped Potato, and I fear there is in this catering just a *souffçon* of Anglo-mania attached to it which, I trust, will never reach the cooking, and serving up in the nude, for that would illustrate the description given by an Irish girl whose sister had served with an English family in London—viz., "Oh! she's real Englified now, and peels the Potatoes." A reliable round variety is, taken all round, the Potato for us, and I think English friends will appreciate us and our Potatoes better by retaining our character than by any attempts at being "Englified."

Between these two extremes—the metropolis and the impoverished West—there is doubtless ample ground and opportunity for sampling the Potato in perfection. Presupposing that His Excellency's remarks at the tercentenary, which possibly may be taken, like Potatoes, *cum grano salis*, leave an opening for our English friends to learn from Irish cooks, I will come to the point (the boiling point) with a few simple rules observed in these localities. The Potato must be cooked in his jacket, consequently he should have a clean and slightly one, a point each for cook and gardener to remember. Whatever variety is favoured the character of that variety and its behaviour in the pot must be studied. For instance, the "Champion" (champion no longer), in use for years, was found to give the best results when the water was strained off at the half-boiled stage, and the operation again resumed with cold water. Another little point, but important, is to select tubers of the same size for the one boiling.

If it is found necessary to soak the Potato late in the season in order to restore any watery particles which may have evaporated under storage in a dry place (which is a bad place) two or three hours in water, unpeeled I beg and insist, is sufficient for the purpose. Place them in sufficient cold water to well cover them, to which, when brought to the boil, add a liberal sprinkling of salt; then previously to their being done quite through strain off, and let the steam finish the process. One Irish lassie who took pride in the task (only she would occasionally forget the salt) used at this stage to put a clean napkin over the Potatoes, and replace the lid for the finishing process. It is an excellent plan.

The highest possible of Potato cookery I have seen was that in which the dishing up completed, I believe, the perfect results. This was in a nobleman's establishment where the Potatoes, cooked as above described, were served up in wooden bowls, the contents of each bowl being covered with a napkin, which was whisked off at the last moment on the table. This led on one occasion to a remark from a lady's lady that "the food was served up in troughs, the same as for pigs," a remark as relevant as that of a gentleman's gentleman at the same table, whose sea voyage to reach this side led him to exclaim, "I shall advise my lord to go back all the way by train instead of having that beastly sea passage."

The wooden bowl is doubtless a relic of the times when trenchers and other vessels of wood were in vogue, including the Irish drinking cup, four-handled and square in shape. Some superb examples of Irish silversmiths' work are to be found in the antique Potato rings. These were probably used as stands for the bowls, possibly also in other ways for serving up the Potatoes, but are now prized as table ornaments by their fortunate possessors. I was lately speaking to a high-class cook on this subject, one who does not disdain to give the matter personal attention, and I was informed that when living in the vicinity of the sea, sea water was invariably used for cooking the tubers, and could not be excelled for the purpose.

Unfortunately high-class cooks appear, as a rule, to think the homely, yet indispensable Potato, beneath their notice, hence complaints abound. One gardener I knew, who was nearly as often in hot water, figuratively, as the Potatoes were, literally settled the matter of "bad Potatoes" by inviting "my lady" to sample his growing and Mrs. Gardener's cooking in his cottage. "Excellent," was the verdict. There is beauty in a

Potato, and joy in eating it when cooked to perfection, and there is, too, I believe, virtue in a wooden bowl when serving up on the altar of our necessities.—PADDY.

OUR most useful vegetable misused. Alas! it is so. Potatoes are left to chance, instead of being made the first consideration. On no account should the Potatoes wait for the rest of the dinner, and yet how often we see the Potatoes taken off the fire and put aside, so that the cook may warm up soup, fry fish, or make sauce! Potatoes should never be put into a steamer till the water boils. When done, must be served at once in a hot tureen. Roasted Potatoes are spoiled nine times out of ten by overcooking.

Then again, the quality of the Potato has a great deal to do with the preparation of a good dish. I would not risk my reputation as a cook by trying to prepare a Potato out of our kitchen garden, which is far too strong a soil, nor from other light sandy land in our occupation; nor will I guarantee to cook Potatoes that have been put up in a sack for an indefinite time and exposed to varying degrees of temperature. In paring a Potato I can tell by the feel if it is a good cooker, and experience soon teaches this. It is too early yet to steep Potatoes overnight in water; that is a good plan later, when there is much growth. A handful of salt and a few sprigs of Mint should be added. Doubtful Potatoes roast best. In steaming the heat must be uniform.

Bad land won't grow good Potatoes. Much may be done by manure, but the constitution of the land cannot be changed unless the cost exceed the value of the crop.

Potatoes are best cooked in middle-class households, where the mistress is at the head of kitchen affairs, and brings a little intelligence to bear on her work.—THE MISSUS.

[When doctors differ! "Place them in cold water," says "Paddy." "Potatoes should never be put in a steamer till the water boils," says "The Missus." "Paddy" has our sympathy in his unfortunate position. Can some County Council teacher on cookery come to the rescue?]

FLORICULTURE UNDER DIFFICULTIES.

IN these days of journalistic enterprise we hear a great deal about successful men. Sometimes we come across characters, born gardeners I will call them, who appear to have missed their vocation, and who, had their lot been cast in the calling would most probably have been amongst its shining lights. Such an instance once came before my notice, and is well worth relating.

It was at the Cardiff Show. The judges had made their awards and passed on, when a voice behind muttered "What a pity! I should ha' won easily." The speaker's appearance suggested that gardening was not his occupation. Moving away his next pause was before a group of trained Zonal Pelargoniums, and then with a look of disgust he started towards the exit, but stopped suddenly as if a new idea had struck him, and inquired whether we knew that "Thomas Hillard was not showing his plants this year." Going on to say—"It's like this, I've won prizes with my Fuchsias and 'Geraniums' for nearly twenty years at Cardiff Show, and this year after I'd got 'em potted, and they had started well, I learnt that the Committee had put a restriction on the size of the pots. Of course mine were too big, and I should ha' bin disqualified if I'd brought 'em. It is a pity, I should ha' 'walked in.' If I'd known before I'd potted my plants."

Making further inquiries we learnt that he was a shoemaker by trade and floriculture was his hobby. The idea of a shoemaker growing specimen Fuchsias and Pelargoniums appeared somewhat novel, but an invitation was given to see the plants at home. Those who are acquainted with Cardiff will know something of the neighbourhood adjoining the docks. The slimy, muddy looking water comes nearly up to the doors of the houses, and it is in Hodge's Yard near the docks that the shoemaker florist grows his plants. Every inhabitant of the Yard appeared to take a lively interest in the Fuchsias, and were profuse in regrets that their owner was prohibited from exhibiting. We regretted to find that the shoemaker's business had called him away from home, but soon learnt that his better half was almost as much a gardener as he himself.

The greenhouse itself deserves a word, being built in a style peculiarly its own. Several additions had evidently been made to the original structure, and its formation, if not elegant, is at any rate ingenious. The lower part of the house is of wood, heavily coated with tar; the side lights appear to have done former duty as window casements, and the roof presents a variety of angles and gradients. Entrance is effected by means of a doorway at one end, and if our surprise was great at the outside appearance it was infinitely greater when, by bending and squeezing, we got among the plants. Junior members of the Hillard family were busily engaged in watering the Fuchsias—magnificent specimens nearly 8 feet high, and wreathed with flowers from base to summit. It was impossible to get among the plants in a perpendicular position, and it was amusing to see the youngsters crawling between the pots on all fours with a watering can.

"How long has your husband grown Fuchsias?" we inquired.

"Well, we've had that plant about sixteen years," replied Mrs. Hillard, pointing to a superbly flowered specimen.

"Suppose you know them by name?"

"Oh, yes; there's Marguerite, Beacon, Charming, Mrs. Rundell, Gustave Doré, and several others." They were all splendid examples of culture, trained in pyramid shape, with points almost touching the roof.

"Your husband must take a great interest in the plants," we ventured.

"Oh, yes; he nearly lives amongst them when he is not at work, and I help him when any assistance is required."

"How often are they potted?"

"Early every spring," was the reply, "and when the plants are commencing to bloom we give them liquid manure."

To make an examination of the Pelargoniums was a more difficult matter, as they were on shelves near the glass, this rendering it quite impossible to see them from the inside. However, with the aid of a pair of steps we were enabled to see them through the glass roof. Never have we seen better plants; staked out in circular manner, and crowned with numerous large trusses of flower, both single and double. Amongst others we noted Raspail, Eureka, Minnie Parker, and Mark Twain. We could only surmise the amount of trouble and care that had been expended on the plants to bring them to such a high state of excellence.

"Your husband must have been very disappointed that he was not able to show," we remarked.

"Oh yes, he was," replied our informant. "You see he has taken first prize for 'Geraniums' at Cardiff for nineteen years, and would have stood a good chance again this time."

With this we fully agreed, as both Pelargoniums and Fuchsias were much superior to anything there was in the show. Proudly Mrs. Hillard displayed a trophy in the shape of a silver medal which was granted by the Cardiff Horticultural Society to her husband in 1893.

The visit to Hodge's Yard taught its lessons, as it was a striking instance of what can be done by a man amid adverse surroundings, and it seems a pity that such plants were not exhibited and honoured at the show.—G. H. H.

WEBB'S SENATOR PEA.

THIS fine early variety, of which a very correct life-size illustration is here given, had the merit of being not merely the earliest but the heaviest cropping of all the wrinkled Marrow Peas grown in the Surrey county trials at Richmond and Chertsey last year. I am not in a position to compare it with such early rounds as William the First or Eclipse, or with the dwarf wrinkled Chelsea Gem or William Hurst; but I have no hesitation in classing it also as one of the best and most productive early wrinkled Marrows in cultivation.

The trials at Richmond and Chertsey were limited to varieties of medium height and suitable for second early or main crops. In both places Senator was noted by the allotment holders with great avidity; indeed, a better early Pea for their purposes, and to furnish fine, handsome, well-filled pods early, could hardly have been found. It was as well at home on the stiff loam of Chertsey as on the light fibrous soil of Richmond, and some grown in boys' gardens at Reigate on pure sand gave the instructor there the greatest satisfaction. The variety will be grown with twenty others at Sarbiton this season and also at Bookham on very diverse soil. In many if not most cases fine Peas are seriously handicapped by thick sowing. All varieties are sown thinly in the Surrey trials, so as to do justice to them and insure a correct test of merit. Half a pint of good seed is sufficient for a row 40 feet in length.—A. DEAN.

MEMORIES OF EXHIBITIONS.

WHAT I have to say on this subject will be simply recollections of what I have seen at flowershows during the past thirty-five years. My first visit to a flower show was in 1861, at which time I was garden boy under a noted Hollyhock and Dahlia grower. We used to grow blooms of the first named equal to any I have seen since, and it is to be regretted that such a noble decorative plant as the Hollyhock should have become almost a thing of the past.

The first large flower show that I attended was held at Grantham, under the auspices of the South Lincolnshire Horticultural Society. The principal features in the plant department were some splendid Fuchsias, ranging from 3 to 5 feet in height, forming perfect pyramids of flowers. The plants in this class were not to exceed one year old. Stove and greenhouse plants were also well represented.

Looking back after this long lapse of years, I feel sure the display of fruit was fully equal both in quantity and quality to that seen at our best shows at the present time. In the principal classes six or seven competitors exhibited splendid Grapes, both Hamburgs and Muscats; also grand Melons, Peaches, Nectarines, and Figs. Four of the exhibitors had fine specimens of the Queen and Smooth Cayenne Pines; in fact, in those days Pines were well grown in nearly all the principal gardens in the country, but in these more go-a-head times the culture of Pines has almost gone out of date. Still, after all, there is nothing equal to a noble Pine amongst the dishes of dessert at a large dinner party.

My next experience in the exhibiting line was when sent with several boxes of fruit to the summer show at the Crystal Palace in 1864, and never shall I forget the day of delight spent in examining the different exhibits. The monster Azaleas of Mr. Turner of Slough and others impressed me greatly; perfect pyramids, ranging from 6 to 9 feet high, and from 4 to 6 feet through at the base, every plant completely

covered with bloom, many of the brighter coloured varieties being dazzling in their beauty. The stove and greenhouse plants were also marvels of culture, and there seemed to be hundreds of specimens; amongst them splendid examples of Ixoras, Allamandas, Dipladenias, Francisceas, Stephanotis, Ipomæas, Ericas, Apelexis, Leschenaultias (both biloba and formosa), and many New Holland plants now almost out of cultivation.

Orchids also were largely represented, mostly *bonâ fide* specimens, not made-up plants. Vandas and Aërides from 3 to 6 feet high, some having eight and ten splendid growths in No. 1 pots. Cattleyas and Lælias were equally well grown and flowered, while Phalænopsis, Cymbidiums, Dendrobiums, and others could scarcely be equalled at the present day. The Roses in pots of Messrs. Paul of Cheshunt and Waltham Cross, Turner of Slough, and others were better than it has been my pleasure to look upon in later years.

My next show was at the Royal Botanic Gardens, Regent's Park, and here the arrangements for the display of the plants exhibited were the most perfect I have ever seen—namely, large mounds and tiers of growing turf in circles and semicircles, some mounds having two tiers

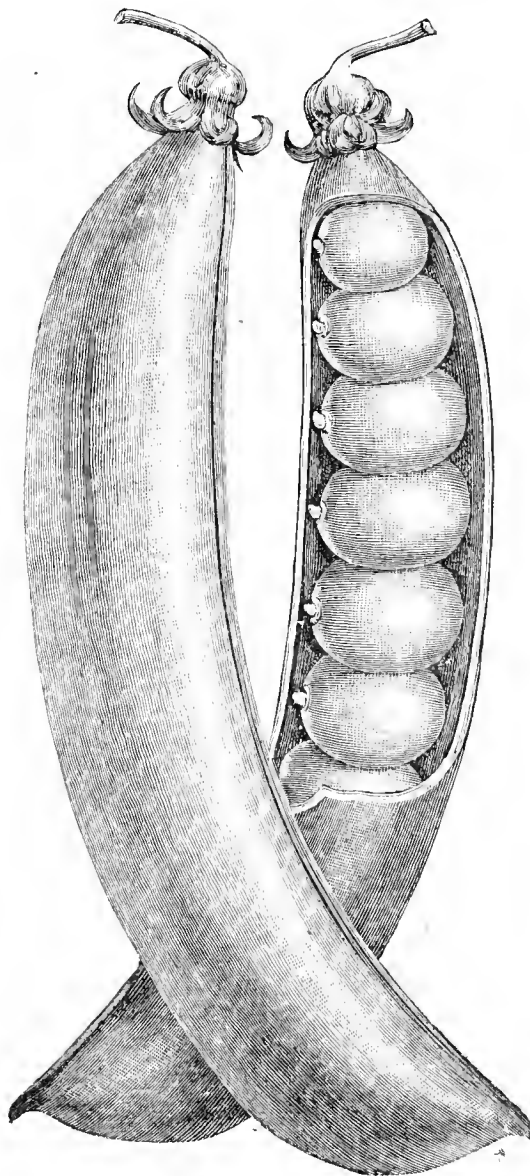


FIG. 32 —WEBB'S SENATOR PEA.

and others three or four. I have often thought that many of our leading societies might with advantage copy this excellent method, for what can be more incongruous than to see splendid specimen plants elevated on rough wooden stages varying in height from 2 to 6 feet? Some at York last year were, I think, higher in one of the tents.

Twenty years ago very few specimens of Palms were seen, either at the shows or in private gardens, and no one can deny that the introduction of such plants as Kentias, Coccoses, and Geonomas has done much to elevate the taste of the British public. We sometimes saw good plants of *Latania borbonica*, *Cycas revoluta*, and *Cordyline indivisa*. Our foliage plants then included Tree Ferns, the Bird's-nest Fern, and Yuccas. Marantas and Alocasias were also well grown at that time, and the Crotons were simply marvellous. Their size and colouring, although there were only three species then in general cultivation—viz., *variegatus*, *pictus*, and *angustifolius*; but the plants of the latter, as shown by Messrs. Baines and Cole, were superior to any exhibited before or since, being almost like fountains of gold in their matchless beauty.

I have mentioned the names of Messrs. Baines and Cole, and I have no hesitation in saying that they were the very best plantmen of this century. It was the custom for many of our societies to offer valuable prizes for twenty-five and in some cases fifty distinct varieties of flowering and foliage stove and greenhouse plants, and even in these large classes a weak plant could not be found. A few years ago it almost seemed as if specimen stove and greenhouse plants in bloom were vanishing, but thanks to such men as Messrs. Cypher, Finch, and a few other growers there is a proof that the culture of these triumphs of the floral world has not altogether become a lost art, and I trust the day is far distant when

lack of exhibitors may compel committees of horticultural societies to strike these classes out of their schedules.

The largest and most complete exhibition of plants I can remember was the International Exhibition of 1866, held under the auspices of the Royal Horticultural Society. Nearly every home and Continental firm of repute was represented, and such magnificent plants have seldom been seen in such numbers. Large specimen Orchids grown in tubs produced a striking effect, as also did huge plants of *Eucharis amazonica* some 8 feet in diameter, and carrying from sixty to one hundred spikes of bloom, grown by Mr. Howard of Balham.

The largest exhibition of fruit I have seen was at Manchester in 1874. Grapes were superb. Mr. Hunter of Lambton Castle was the champion in many of the fruit classes, one bunch of Black Hamburgh Grapes weighing over 21 lbs, the largest bunch of this variety on record.

It has fallen to my lot to take some part at many of our best shows, and I do not doubt that many of my younger hearers will be saying to themselves, "You have told us plenty about the shows of twenty to thirty years ago. What about the shows of the present day?" My opinion is this. Taking them all in all they are the best exhibitions of horticultural produce the world has ever seen, and no country can equal our own in producing such splendid examples of Nature's boundless wealth, both in fruits, flowers, and vegetables; and why is this? It is not that we have the most suitable climate, or the best appliances, or the most fertile soil; but it is simply that the Anglo-Saxon people possess such indomitable perseverance that they will not be beaten by any other country, either in war or in the milder pursuits of peace.

To my mind the greatest advance that has been made in popularising our horticultural shows has been brought about by the introduction of classes for groups of plants arranged for effect. What a remarkable degree of excellence this feature has now reached, and it must be gratifying to the members of our little Hesse Society to know that we have amongst us men who have repeatedly taken a foremost place in these classes even at our largest and best shows, where the competition is most keen; also we have one who has never suffered defeat in any competition of this kind, and I sincerely hope he never will. I consider him not only the champion exhibitor of groups of plants, but the pioneer in training and teaching others what good groups ought to be. He is no copyist; his ideas are as original as they are beautifully carried out, and we all hope the future may have many more triumphs in store for him. After the groups I think the classes for bouquets, stands of flowers, tasteful arrangements for table and other decorations have made immense strides during the past few years, and this improvement, as exemplified at our shows, has done much to advance the national mind in tone, taste, and refinement. There has been a great advance in the quality and culture of florists' flowers, such as Roses, Chrysanthemums, Begonias, Gloxinias, Lilies, Carnations, and many others too numerous to mention here.

True, there are some classes that are now seldom seen. I refer to those for rare plants, both exotic and British, also British Ferns. At one time there were classes at York for twenty-four and thirty-six distinct varieties of British plants. The loss of these classes has been much felt by many, but their removal had become necessary so as to make room for more showy exhibits, for, after all, we are not all botanists, and cannot fall in love only with that which is most rare.

Now just a word or two on the compilation of schedules for our large shows. My opinion is that these schedules should contain classes for everything that can be produced in good condition at the time of the show, and which may be grown in sufficient numbers to bring out a strong competition. I think also that the prizes offered should be as proportionate as possible in value with the merits of the exhibits, and in no case should a first prize be in excess of the second and third combined. It is very hard on any exhibitor who may miss the first prize by a single point to lose £5. Some may say this is the fortune of war, but when gardeners have to pay all their own expenses as exhibitors, it is the misfortunes of war that trouble them the most.

The number of horticultural shows has largely increased during the past few years, but unfortunately the reverse has been the case in our own immediate neighbourhood, but even about here several village shows have been inaugurated recently, and are doing some good, but I should like to see good summer shows at Hull, Beverley, Hesse, and Cottingham. These need not injure any of the existing village shows, which are more especially for amateurs and cottagers, and in these shows I should like to see three or four villages grouped.

Before closing I must give a little advice to my young friends, who may in the future have the chance and inclination of entering the lists of exhibitors at some of our leading shows. First of all send for a schedule as soon as they are published, read it carefully through, paying particular attention to its rules and regulations, then mark the classes in which you consider you have the best chance of competing successfully. Having done this leave no stone unturned to make the very best of the material at your disposal. Keep your plants thoroughly clean (also their pots), and work them up into the best possible health, while in training study the natural contour of the plant, and retain it as far as possible. If the plant is a climbing kind, as a rule an oval-shaped balloon is suitable. Whatever method you adopt try and hide all your stakes and ties, remove all dead or dying foliage, see that everything is correctly named, and time your flowering plants to be at their very best on the day of the show. This matter is the most difficult of all, and can only be done successfully after much experience, and you will soon find that ten times more labour and skill are requisite in producing good flowering plants on the day of the show than in the production of good foliage plants. Another thing, all who aspire to be good plantmen

should keep trying their hands upon the most difficult plants to grow, for depend upon it a difficult thing well done always tells its own tale. There is far more pleasure and credit in showing well a difficult plant than in staging something that can be grown with ease.

When the important day arrives he at the show in good time with your exhibits; go steadily to work, making the very best of everything you have by staging as effectively as possible, then calmly await the verdict. If you meet with defeat look carefully around and see where and how you have been beaten, and determine quietly but determinedly to reverse the positions in the future, and success will eventually crown your efforts.—(Read by MR. CHAS. LAWTON at a Meeting of the Hesse Gardeners' Mutual Improvement Society.)

THE YOUNG GARDENERS' DOMAIN.

R.H.S. EXAMINATION.

ON page 122 "W. R. R." asks if the date given in my advice—viz., the first week in February, is correct. The date named was taken from the R.H.S.'s Journal, but on a form I received from the Secretary I found it stated, "This form must be returned not later than the 16th of March." On page 114 of last week's *Journal of Horticulture* it states, "Candidates wishing to sit for examination should make application during February." I should think the date mentioned on the form—namely, the 16th of March, may be taken as correct.—A STUDENT.

It is not without a feeling of trepidation that I take up my pen to offer a few remarks on the above subject. Your correspondent "Subordinate," page 17, seems a little disheartened at only gaining a third class certificate at the last exam; to him I would like to offer a few words of encouragement, and wish him better success next time. "If at first you do not succeed try again" is an old motto, and a very good one; remember Rome was not built in a day, so if our worthy friend persevere who knows but what he may be in the first class next time?

I was a candidate at the last exam, and I have no reason to be disheartened with the result, although I did not come off with first honours. But apart from that, I derived much benefit from studying for the occasion and object. I think it is a grand thing when we know some of the great scientific principles which underlie our work, which knowledge can only be obtained from books by the greater part of young gardeners.

Our friend says he felt ashamed of himself being beaten by a porter. It seems rather hard on a man who has spent sixteen years under some of the best gardeners in the country, but it appears the porter is very enthusiastic over his garden, and may have spent much time studying why certain things are done and what they are done for, with the result that he stands before our more practical friend. These men may, and sometimes do, pass the exam easier than the majority of young gardeners; but I quite agree with "Subordinate" that they are not qualified for the position of head gardener, and no doubt they know it.

I quite approve of examinations, and think that a knowledge of theory combined with practice is most desirable. Still the R.H.S. exam is no criterion of a man's skill in the garden. It is well to have a certificate from the Society; but of what use is it to a young gardener, even if a first-class, when applying for a situation without one from his chief for practical work, who is the better able to testify as to a man's capabilities?

I should like to make a suggestion, however. If the exam is to take on with young gardeners they should have a class to themselves. How can we expect to compete with men who have the advantage of years' more experience, not forgetting the students from Swanley College and the Central Laboratory, Chelmsford? I should like to know a little about these institutions. I wonder if these students could compete with us in actual work, such as digging, mowing, wheeling, stoking, fumigating, and all other duties which the young gardener has to fulfil? What would the ladies think of us if we were to go in for examinations in dairying, dressmaking, or cookery, although I am sure the latter would be very useful to many of us.

I think there is very great credit due to those young gardeners who do pass when they have such rivals to compete with. I think many more would enter if they had a class to themselves, or for gardeners only. I venture to say there would then be plenty of candidates from all parts of the country. I should like to hear the opinions of other young gardeners on this interesting subject.—NOVICE.

GLOXINIAS.

So strikingly beautiful are these gorgeous plants when well grown that they fully deserve the reputation they enjoy of being among the most desirable of florists' flowers, and considering their comparatively easy culture, the wonder is they are not more largely grown. A stock of plants may be raised in the following manner.

Procure a packet of seed from a reliable source. This is of first importance, for unless the seed is obtained from a good strain, good results cannot be expected. Well crock some thoroughly clean, shallow seed pans, fill them with a mixture of leaf soil and sand, soak with tepid water, and allow to drain. Sow the seed thinly on the moist surface, placing the pans covered with squares of glass on a gentle hotbed; excluding light until germination takes place, when they will require a position on a shelf near the glass.

As soon as the tiny seedlings can be fairly seen prick them off 2 inches apart in shallow boxes, using for this operation two pieces of stick, one in the form of a prong for lifting the seedlings, as they are

much too small for handling with the fingers. When the plants have made four leaves they may be placed in 3 or 4-inch pots, these being found ample for the first season. During bright weather shade carefully from the sun. As the plants bloom select those that are desirable, and after flowering gradually withhold water from them, and finally place them on their sides under the stage in a cool greenhouse, where the tubers may pass the winter.

In the early months of the year any desired number may be started at intervals of three weeks to insure a succession of bloom. Pot the tubers in small pots, and place them in a house where the temperature does not fall below 50° at night. Water carefully at first, increasing the supply as the plants grow. Although Gloxinias are lovers of moisture, anything approaching stagnation is highly prejudicial, therefore always drain sufficiently. They delight in shade, and for compost nothing seems to suit them better than a mixture of three parts well decayed leaf mould, one part each of loam and sand, with the addition of a light sprinkling of soot to impart colour to the foliage. For ordinary establishments 5 or 6-inch pots will be found large enough for flowering the plants in unless they be required for exhibition, when pots of larger dimensions may be brought into use.—YOUNGSTER.

CHRYSANTHEMUMS.

IN preparing Chrysanthemum cuttings, especially for exhibition, I insert two cuttings in each 3-inch pot employed in providing between 500 and 600 plants, which are grown for large blooms. They root quicker by the side of pot than in centre, and the young plants do not feel the slightest check from dividing and potting singly, but the roots take to the fresh soil at once. I find after repeated trials that they do equally as well, if not better, than those rooted singly. Although this mode is wrong, according to most of our leading Chrysanthemum growers, anyone pressed for room during December and January need not be afraid giving the plan a trial. We have won many prizes at the leading shows in Ireland from plants so treated. I also find that first-class blooms can be cut off plants struck in heat in February and March, many varieties coming in at the right time for the November shows, whereas if the same varieties were rooted in December or January would be too early.

As many persons will be throwing out their old stools of Chrysanthemums now, I advise them to save a plant of each of the following:—Vivian Morel, C. Davis, F. Davis, Col. W. B. Smith, Mdle. M. Hoste, Souvenir de Petite Amie, Emily Silsbury, Mutual Friend, Phœbus, and W. H. Lincoln; and insert cuttings in April and May. Pinch the April-struck cuttings well back the first week in June, and take the first bud. May cuttings, unless they are off the stem or tops of tall shoots, require no pinching, and generally show a bud the first week of August. Stem cuttings and tops must be pinched when well rooted.

Allow only one flower to each plant. Many of these blooms will equal in size those from plants grown in large pots, while these late-raised plants will be only from 12 inches to 18 inches high if grown cool and have abundance of room during the summer. Many others give fine blooms, only they grow too tall; Duchess of Wellington, Col. Chase, and Duke of York doing extra well but for their height. I saw this plan recommended several years ago, and have since grown an increasing number of these plants. They are the admiration of all visitors, and most useful for house decoration.—W. T., Ireland.

STRAWBERRIES FOR FORCING.

IF it is intended that layers are to be taken from young plants towards the end of July, make a plantation large enough to throw sufficient runners for next year's stock. Plant 1 foot apart in rows 1 foot 6 inches asunder. If the season be dry afford good waterings until the plants have taken to the soil. Winter past and growth commenced, try all means to obtain good plants. The Dutch hoe is very useful, not only in keeping down weeds, but stirring the surface soil is very beneficial to growth. It is good practice to take off all flower trusses as they appear on these small plants, thus throwing the vigour of the plant into the runners.

When sufficient runners are produced with good plantlets attached, layering is commenced. Use 3-inch pots, filled with a root-enticing compost; stop the runner at the joint, and fix the plantlet with a small pebble or peg; pebbles are best, as they retain the moisture in the soil. Give water on bright days, sprinkling the foliage at night, and do not allow the plants to become dry. In about three weeks they will be well rooted, when they should be detached and taken where they will be handy for potting. If possible stand them in a shady place.

For fruiting use 5 and 6-inch pots, according to the variety. The compost should consist of five parts loam, one of spent Mushroom bed refuse, a 6-inch potful of a good fertiliser, some bonemeal, and a 3-inch one of soot to each barrowload. In potting see that all the plants are moist. Do not bury the crown, pot firmly, leaving 1 inch of space on the top of each pot. Stand in a shady place for a few days, afterwards take them to their summer quarters. Stand all the pots on boards or some hard surface as a preventive against worms. Face the crowns south, they will ripen better. Be sparing with water until the roots are working freely. Keep the soil free from weeds, all runners picked off, also side crowns as they appear, only allowing the central one, better fruits are obtained from it. On the evenings of bright days sprinkling the leaves is very beneficial. During the season the plants derive benefit from an occasional application of liquid manure water.

When cold weather sets in take the plants to their winter quarters. Cold frames are best; where these cannot be spared, space must be found where protection from heavy rain, snow, and frost can be afforded. On

favourable days remove all protection, endeavouring to keep the plants as hard as possible. On no account allow them to suffer by drought at the roots.—SEMPER.

(To be continued.)

GRAPE VINES.

I ALWAYS read with interest anything written on Grape culture, therefore the articles by "W. T." and "H. H." have not escaped my notice. "W. T." tells us on page 80 that "they always damp down with liquid manure water, as ammonia from it helps to keep Vines free from spider." I have placed Vine leaves infested with red spider in an atmosphere so strongly charged with ammonia as to make it impossible to breathe in it, and although the leaves were all scorched up not one of the spiders was killed. "H. H.," page 123, says, "In order to induce the Vines to break evenly at the time of starting they should be bent in a semicircular form. By doing this part of the sap is directed to the back buds instead of rushing to the top of the Vine." A few years ago this was our practice with about 4000 Vines. Seeing how badly some canes broke I found on examining the wood cells that they were ruptured near the bend, consequently the buds could not break freely. This induced me to try tying the Vines to the trellis before they were started and letting them remain there, and I can assure "H. H." if he will try this he will find no difference in breaking of buds between the Vines tied up and those bent down.—A STUDENT.

TUBEROUS ROOTED BEGONIAS.

THERE are, I think, but few plants so valuable for conservatory or garden decoration as the tuberous Begonia. The plants are generally raised from seed, and the time for sowing must be determined by the time at which the plants are expected to bloom. Seeds sown in February will generally afford plants that will flower about June. Use well drained seed pans filled with a compost of loam, leaf mould, and sand in equal parts, finishing with half an inch of the same finely sifted for the top, making the surface smooth and even.

The seed should be sown thinly and covered with the finest soil, placing the pans in a temperature of 60° to 65°. Cover with glass, over which place a thin layer of moss or some thick paper. As soon as the seedlings appear they must be gradually exposed to the light, and eventually placed on a shelf near the glass, where they should be shaded from the sun till the young plants become hardy and able to bear the full light. When seedlings are large enough they must be transplanted about an inch asunder in pans, and when well established they may be transferred to small pots, and subsequently into larger ones as required.

Use well drained pots, and a compost as follows:—Sound loam two parts, fibrous peat one part, leaf mould one part, well decayed cowdung half a part, and a small addition of silver sand. Do not allow the plants to suffer by want of water when they are growing freely. As the season advances gradually reduce the water supply, and as the stems begin to wither allow the soil to become quite dry. Clear soot water is a good stimulant during the flowering period, and an occasional supply of weak liquid manure may also be given. Always keep the plants free from insects.

When resting, the tubers may be allowed to remain in the pots, which ought to be laid on their sides to prevent the tubers getting wet. They will also keep well when placed in boxes filled with cocoa-nut fibre. The temperature in which they are resting ought not to fall below 40°. They should be allowed to start into growth before repotting, when if a larger supply is in demand they may be divided and the cut fleshy parts dressed with powdered charcoal. They will also root freely from cuttings taken and inserted in small pots placed in a gentle bottom heat.—J. F. D.

CONSERVATORY MANAGEMENT.

(Continued from page 123.)

HAVING completed all necessary preparations hybrid Azaleas, which will now (April) be coming in flower. These, together with Deutzia gracilis (a number of which should have been steadily coming on), form a charming display. Many plants of Cytisus and Cinerarias will still be serviceable. Arum Lilies, Freesias, Imantophyllums, with Acacias armata and Drummondii will all be in bloom about this time, and help to complete the floral collection. Of the smaller plants for edging Sedum Sieboldi variegatum, Isoplepis gracilis, Funkia undulata argentea, F. undulata aurea, grown in 6-inch pots; Cyclamen, Primulas obconica and floribunda are all very useful. Hyacinths and other bulbs which have been kept in cold frames will still be available. Perhaps at no other season will the house appear so gay as now. Admit air freely when weather permits, and a light shading should also be afforded on bright days, in order to keep the flowers fresh as long as possible. Large bees are generally very troublesome at this time, and should be kept down, or they will do damage by causing the Azalea blooms to fall prematurely. A muslin net tied to the end of a long stick is very useful for catching the bees. Very little fire heat will now be required in the daytime, but warmth should be kept in the pipes on account of frosty nights.

In May the same collection will continue to beautify the house. Artificial heat may now be dispensed with, and shading afforded. Ventilate freely, and damp the floor about midday. By the end of the month the Azaleas and Deutzias will be ready to be removed. Pick off the old flower stems from the former, being careful not to injure the young growth in the operation. They may then be stood in a greenhouse, keeping it rather close until growth is complete. Syringe twice a day. A light top-dressing with Standen's manure will be beneficial. Deutzias may be similarly treated until growth is matured, when they may be

plunged in an open place where it will be convenient to cover the pots with leaves or old Mushroom bed refuse when the frost returns.

When the plants which have finished blooming have been disposed of attention should again be paid to the climbers. Clean the house thoroughly, when it will be ready for the succession of Pelargoniums. These plants having been finally potted in March, or April at latest, in a compost of rich loam with a little charcoal added, should now be flowering, with *Lilium Harrisii*, *Malmaison Carnation*, *Spiræa japonica* and *astilboides*, together with many of the smaller plants left from the previous collection. Herbaceous *Calceolarias* raised from seed sown in June will also be in bloom now. These make an effective group arranged with *Adiantum cuneatum*.

This collection will monopolise the house until the middle of July, when they will have completed their work. The Pelargoniums should then be stood in an open frame to ripen their wood, when they may be cut back, leaving one or two eyes on each shoot, from which the new growths will start. Water should be given rather scantily until growth commences. When the young shoots are about an inch long the plants ought to be shaken out and placed in smaller pots. A compost of good loam with a little sand and charcoal added will suit them very well. They may then be removed to a cool greenhouse, and care taken in watering until the plants are well established. When the growth is about 3 inches long take out the points to insure bushy plants. An occasional top-dressing with Clay's fertiliser will greatly assist them until they are finally potted as previously stated.

Having suitably disposed of all other unnecessary plants, the opportunity should again be taken to do all requisite cleaning preparatory to the house being again arranged with the next succession.—P. W.

(To be continued.)

[We shall be much obliged if all our young friends will, as the majority do, write their names and addresses at the top of their MS., not on separate slips or in private letters. Marks of merit are accorded for every article, and duly entered in the register to the names at the head of each MS. We should also like every writer to do what all the best of writers do—namely, write every word in full that they intend to use. Abbreviations are defects in literary work. We have other notes in type, and we wish it to be understood that it is not the rule to publish the best first.]



FRUIT FORCING.

Cherry House.—The temperature being maintained at 40° to 45° at night, and about 50° in the daytime regularly, the trees rapidly unfold the buds, especially when the weather, as it has been recently, is mild. Before the flowers expand it is desirable to fumigate the house, as aphides are very partial to the tender growths of Cherry trees and almost certain to be present; or by syringing the trees with an approved insecticide make sure the trees are free from the insects. The liquid, however, must be clear and not injurious to Cherry blossom, which is easily damaged or discoloured. Rather strong quassia water (4 ozs. chips to a gallon of water, steeped overnight and boiled a quarter of an hour) answers well, repeating at intervals of a day or two. Though a Cherry house, especially for early forcing, may only be found here and there throughout the country, no structure affords more acceptable fruit for dessert in the late spring or early summer months.

But few varieties should be grown for general purposes, three excellent being Early Rivers, Governor Wood, and Black Tartarian. A lean-to house erected against a wall with a south aspect is suitable, and it need not be more than 6 to 7 feet 6 inches in width. The front need not be more than 2 feet 6 inches in height, so that the roof will be a long one, and facing the sun at a desirable angle for admitting light. Ventilation should be provided at the top and bottom, and the roof lights must be moveable. A trellis 9 to 12 inches from the glass will be needed to secure the trees in proper position. Fan-trained trees with stems just reaching to the trellis are most suitable. Two rows of 4-inch hot-water pipes (a flow and return) will afford sufficient heat. The border must be inside, though the roots may also have access to the outside, and thoroughly drained to carry off superfluous water. Good loam, preferably calcareous and rather strong, but with a free admixture naturally or artificially of gritty matter, is most suitable. Trees from the open wall between three and four years trained, if carefully removed to the house, come into bearing at once; but to insure success they must have been frequently lifted. Supply water to settle the soil about the roots, and ventilate the house freely, syringing the trees in the morning and again early in the afternoon, employing fire heat only to exclude frost; but when the trees are fairly in growth let the day temperature from fire heat be 50° to 55°, rising to 60° to 65° from sun, increasing the ventilation at 55° and close at that temperature, leaving, however, a little ventilation on day and night; 40° to 45° at night from artificial heat will be sufficient.

Cucumbers.—The plants require a steady temperature and genial atmosphere, the bottom heat 80°, not allowing it to fall below 75° or exceed 90°; top heat 65° to 70° at night, 5° less in severe weather; 70°

to 75° by day, rising to 85° or 90° with sun, closing early in the afternoon, so as to run up or maintain a temperature of 90°, 95°, or 100°. Examine the plants in bearing once a week for the removal of bad leaves and exhausted growths, not allowing them to remain, but thinning the shoots—the young to prevent crowding, and the old to allow of training-in young growths. Stop one or two joints beyond the show for fruit, removing old and deformed fruits, as they do nothing but impoverish the plant. In securing the young shoots to the trellis do not tie them too tightly, but allow room for development. Plants that have been in bearing some time should have the surface soil removed, and previously warmed fresh soil added. Turfy loam, with a fourth of well-decayed manure, will answer; but to get colour into the fruit, without which they are faulty for marketing, sprinkling a good handful of soot on each square yard. Native guano is also an excellent dressing for promoting high colour in fruits. Damp the pathways on bright mornings and early in the afternoon, keeping the evaporation troughs charged with liquid manure—neat stable draining diluted with five times the bulk of water, or Peruvian guano ammoniated, 1 lb. to 20 gallons of water.

Cucumbers in frames must be well protected at night with mats or other covering, attending to the linings, and being careful to avoid rank steam, having the materials well sweetened, a reserve heap of manure and leaves, properly turned, being kept for use as required.

Figs.—*Earliest Trees in Pots.*—The trees having a number of fully developed leaves and the roots active they will require a proper supply of water and nourishment. Turves may be placed around the rims of the pots so as to form a dish, and this sprinkled with rich compost as the roots occupy it is better than giving a heavy top-dressing all at once. Liquid manure in a weak tepid state must be given as required, and always in sufficient quantity to pass through the soil to the drainage. The atmosphere must be kept moist, syringing the plants twice a day when the weather is fine, and damping the walls and paths when dull, for having the foliage constantly wet is not favourable to the tree's health. Keep the temperature steady at 60° at night, falling 5° on cold nights, 60° to 65° by day when cold and dull, and 70° to 75° with gleams of sun. Admit a little air at 70°, keeping it with sun heat at 75° to 80° through the day, closing sufficiently early to run up to 85° or 90°. Attend to stopping and tying as growth advances, and guard against overcrowding by rubbing off shoots not required. The shoots should be pinched at the fifth leaf, and as the branches may not always be thinned without sacrificing fruit advanced in swelling, tie such out, putting in the needful stakes. The shoots are easily cut out, if not required, when the fruit is gathered, and it is essential that Figs have full exposure to light and a free circulation of air to insure flavour and colour, therefore keep the growths thin and evenly placed.

Early Forced Planted-out Trees.—The trees started with the new year are growing freely, and must be attended to for disbudding and stopping. Where there is trellis room the leading shoots may be allowed to extend to the extremity without stopping, not laying in more than there is room for insuring full exposure to light, reserving a few growths where there is space, pinching them at the fifth leaf. These will give second crop Figs, and may be useful for displacing shoots later that are cut away, but it is not good practice to encourage spur-growth. Mulch the border with lumpy material to attract the roots to the surface, and supply water freely, with liquid manure in the case of trees requiring support through limited rooting area. A temperature of 55° to 60° at night, 60° to 65° by day artificially, 70° to 75° with a little sun, rising 5° to 10° from bright sunshine, will be suitable.

Late Houses.—The pruning and dressing of the trees should be completed without delay, using a brush and soapy water to cleanse them of scale, adding a wineglassful of petroleum to each gallon; but to secure an even mixing dissolve ¼ pound softsoap in a quart of water by boiling, and when boiling add the petroleum, removing from the fire for safety, and stirring briskly. Dilute to 1 gallon with hot water for use. Keep the house as cool as possible, merely excluding frosts.

Strawberries in Pots.—After being fairly set remove all badly set and deformed fruits, leaving from four to half a dozen of the more promising to each plant, and aid their swelling by liquid manure. The temperature should be 60° to 65°, advancing to 70° or 75° by day with moderate ventilation. Avoid drying currents of air, as they injuriously affect the swelling of the fruit. Examine the plants twice each day, giving water to those only needing it, and in sufficient quantity to show at the drainage. See that succession plants are kept free from aphides, fumigating if necessary before the flowers open. British Queen and other sorts for a late supply may now be started, introducing, however, proportionate quantities of Sir Joseph Paxton and similar varieties to maintain the succession.

THE KITCHEN GARDEN.

Early Peas.—About the middle of February is a good time to sow the early round-seeded Peas, such as William I., Exonian, and Eclipse in the open, but heavy soils will not as yet have recovered from the saturation they have had lately, and to puddle in any kind of seed is only to invite failure. Better wait a fortnight longer than do that. In any case keep the more tender, wrinkled seed in the bags a while longer, as these are most liable to decay in the ground if sown before it is fit for their reception. From a pint to a quart of seed sown in "Geranium" boxes under glass in gentle heat would give enough plants for forming a row or rows equal to a length of 60 feet, and if put out before the roots become matted together little or no check would be caused to their progress, and excellent early crops obtained. Plant on warm borders in due course, and take the first favourable opportunity,

this being when the ground works freely and does not bind badly when trampled on, of sowing seeds in the open by way of succession.

Spinach.—It is the usual practice to sow Spinach at the same time as Peas, arranging the rows midway between the latter. This plan answers well, the Spinach attaining a serviceable size before the Peas unduly shade it. Open shallow drills, and sow somewhat thinly. The autumn sown Spinach has withstood the frosts well, and with a return of sunshine and dry warm weather growth should be strong. On a dry day hand-weed between the plants where needed, and use the Dutch hoe between the rows, raking off the weeds, or otherwise they will rot afresh.

Broad Beans.—Much that has been advanced concerning Peas also applies to Broad Beans, the seed of choicer varieties of these being also liable to perish in a cold wet soil. If wanted extra early sow the Early Longpod in small pots, and plant out before the plants become stunted in growth. This variety and the popular Beck's Dwarf Green Gem may be sown on warm borders or in a well-prepared sunny open site directly the ground can be got into a suitable condition. Open single drills 2 feet apart and 2 inches deep, dropping in the seeds somewhat freely to allow for failures.

Cabbage.—Few or no plants have been injured by frost, slugs proving the worst enemy to them. It will be found that most of the plants have been partially upheaved by the action of frost, and they will not make good progress, many probably bolting unless refixed. A frequent use of the Dutch hoe is one of the best preventives of slug increase, and otherwise acts beneficially. Fill up gaps in the rows of Cabbage plants with others from the nursery or seed-beds, moving those that have been previously pricked out with a trowel, a ball of soil about the roots being essential in this case.

Garlic and Shallots.—If these are kept out of the ground till they have sprouted badly a partial failure is likely to occur. Directly the soil, previously manured and dug, is dry enough to walk upon without binding seriously, make it fine to a depth of at least 4 inches without bringing up lumps of wet soil from below, at the same time stirring in soot by way of a manurial dressing. The rows across the border to be 1 foot apart, and the bulbs 6 inches apart in the rows. Press them in, only the neck showing above the soil.

Parsley.—The principal breadth of Parsley may well be associated with Garlic and Shallots. Drills may be drawn midway between the rows of the two latter and Parsley seed sown, or better still, the requisite number of plants raised thinly in boxes or beds of soil in heat, and these, after being duly hardened off, dibbled out singly, from 9 inches to 12 inches apart. Parsley can be had much the quickest in this way, and grand plants form before the end of the season. The Garlic and Shallots will be ready for clearing off long before the whole of the ground is required by the Parsley.

Parsnips.—February has long been the popular month for sowing Parsnip seed. If extra large roots are desired early sowing is advisable, but not if the necessarily deeply dug ground is in a sodden state. Better wait a fortnight or three weeks later, sowing the seed when the ground is in a fit condition to receive it. If the ground was heavily manured for a preceding surface rooting crop none ought to have been dug in for Parsnips, and the least that can be done is to bury solid manure not less than the full depth of the spade, an early contact of the tap roots with animal manure causing them to fork. For cooking purposes small roots are much to be preferred, and these will be more surely obtained by sowing a month or six weeks later.

Turnips.—Early Turnips are always of good service. If not as a dish they are almost indispensable for flavouring soup. The Early Milan is the quickest to "bulb," and an east border is the best position for sowing. Let this be freely manured, and got into a fine firm condition. Sow the seed in shallow drills 12 inches apart. A close look out to be kept for the seedlings, and directly they appear dust over heavily while the dew is on them with soot and lime by way of preventive of bird, slug, and flea attacks, repeating this as often as need be.

PLANT HOUSES.

Crotons.—Well-furnished plants that are to be grown to a larger size may be transferred into pots 2 inches larger than those they now occupy. In potting only remove the crocks from the base and loose soil from the surface. Well furnished heads of the larger growing varieties may have pots 8 inches larger than those they are growing in. Plants that have good heads but have become bare at the base may be partially cut through on each side, mossed, and supplied with a stake. These if kept moist and with those that are repotted in a temperature of 65° at night will soon be well rooted. Those mossed in early autumn are well rooted and ready for taking off. If these are placed into 5-inch pots and plunged in bottom heat for a fortnight they will not lose a single leaf, and in a short time will be ready for larger pots. If these plants are increased by means of cuttings they may at this season of the year be cut off where the wood is soft, or they will be a long time rooting and often lose their lower foliage. These plants do well in fibry loam three parts, the other portion being composed of decayed manure, leaf mould, and sand. A little artificial manure may with advantage be mixed with the soil.

Dracaenas.—It is impossible to grow these into good plants if they are confined in small pots until they become stunted and woody. If they are to be developed into healthy well-furnished specimens they may be potted directly the soil is moderately well filled with roots. Those placed during September into 5 and 6-inch pots are ready for others 2 inches larger. The pots at first appear too large for the plants, but they will commence rapid growth, and develop into large well

furnished plants in this size. Some of the narrow leaf varieties do not need such large pots, and are generally more useful in 5 and 6-inch size. Plants that have become bare may have the stems notched and mossed; these soon emit roots, and are in a few months suitable again for table decoration. Plants that have been kept rather dry may have the root portion of the stem cut up for stock. Every portion will make a plant if inserted in sandy soil and started in brisk heat. These plants, if well looked after, are amongst the easiest of foliage plants to grow, and amongst the most useful for decorative purposes. The heads of *D. gracilis* and *D. Goldiana* root freely if cut off where the wood is moderately soft, and the pots plunged in brisk heat.

Pandanus Veitchi.—Repot small plants in a mixture of loam, sand, and one-seventh of manure. These are useful in various sizes up to 10-inch size. When plants are well developed all the suckers are removed for stock, and the specimens are employed for decoration until they are of no further use. When once a stock is obtained there is no difficulty in growing young plants as rapidly as others are destroyed. For rooms, or even the dinner table, these plants look well rising from a base of Selaginellas and small Ferns. When giving the final potting a few may be placed on the surface. By the time the plants are ready for use the base will be well furnished.

Ixoras.—Large plants, or those of moderate size, may be cut into shape and thoroughly cleaned. These may then be plunged in bottom heat and started into growth. By cutting the plants back the whole of the shoots start into growth about the same time, and a regular head of bloom is obtained. When the plants have started into growth any potting that is needed should be done. The old ball must not be disturbed, and the plants may be potted in peat and sand with a little charcoal added. Considerable care is needed in watering and syringing. Any young shoots of moderately soft wood can be inserted singly in small pots and rooted in brisk heat in the propagating frame. These can be allowed to grow and flower in 4-inch pots. If needed for bushes the point must be removed when the cuttings are well rooted. Those inserted in autumn and have been wintered in 2½-inch pots may be topped and placed in 5-inch pots. It is a good plan to top some and allow the others to grow on without, so that they will form a succession.

Rondeletias.—These are difficult to grow into fine specimens, yet with care and good treatment this can be accomplished. They yield flowers freely, which are very serviceable for cutting, and should be grown much more largely than they are. The plants are slow in a young state, and much headway cannot be made in a solitary season. Cuttings of soft wood root freely in sandy soil under bell-glasses in brisk heat. This plant may be grown into bushes or small standards; for the latter the young plants, after they are rooted, must be supplied with a stake and allowed to extend until the necessary length of stem has been produced, when the point should be removed to induce it to branch. For bushes the young plants may be topped when they have made a few inches of growth. Pinching is necessary until the plants have formed good bushes, when the shoots may be allowed to extend and ripen thoroughly, when every one will produce a truss of bright scarlet flowers. To grow these plants well they may be grown with *Ixoras*, and if given bottom heat they extend much more rapidly during the early stages of their growth. *Rondeletias*, of which *R. speciosa* major is the best, are not strong-rooting plants, and do well if potted the same as *Ixoras*, and in similar compost. We have been successful with them when one-third of sandy loam has been incorporated with the peat. These plants are much subject to thrips, and need careful watering. When bushes or standards have been formed they can be kept shapely by a judicious system of cutting back the shoots after flowering.

Francisceas.—Introduce into brisk heat a few of these plants in succession as they are required in bloom. When they have flowered cut back the shoots and start them into growth, repotting those that need more root room. They succeed in a compost of peat, loam, and sand, and when the plants are growing freely an intermediate temperature is suitable.

THE BEE-KEEPER.

APIARIAN NOTES.

WILL "An English Bee-keeper" kindly explain the following which I have taken from the last issue of *Journal of Horticulture*? "All sections of comb honey should be properly sealed over, and if glazed it will prevent them being damaged when handled." When sections are properly sealed is there a composition for glazing that will prevent the honey from leaking? I should be extremely obliged for any information on the subject. I have only just commenced with bees, and find there is much to learn.—B. C. N.

GLAZING SECTIONS.

When sections of comb honey are glazed it is a great protection from damage whilst being handled. It will at once be seen that sections treated in this manner cannot possibly come to any harm unless the glass is broken, and this will only happen if roughly used.

There is no composition that will prevent the honey leaking if it is not well sealed over, from the fact that the comb is not

interfered with, but if the operation is properly carried out there cannot possibly be any leakage. The glazing of sections, however, adds to the expense, and unless an extra price can be made of them in that form I do not recommend it for general use. In some districts it is rarely done, but in the South of England it is much more frequent.

Mr. W. Woodley, Beedon, who has one of the largest apiaries in this country, obtains the bulk of his surplus in sections, and is a warm advocate of glazing them. He says, by going to a glass merchant and ordering a few gross of glass cut $4\frac{3}{8}$ by $4\frac{3}{8}$ (if cut to this size there will be no trouble with sharp corners sticking through the paper), the price will be about 2s. 6d. per gross. To this must be added lace paper, which is specially made for that purpose, and may be obtained of dealers at a cheap rate (about 4s. per 1000 strips).

In the operation of fixing rest the section of honey flat or slanting to suit the convenience in handling, lay on glass, and then gum the paper strip (cut to 17 inches), fold it round, and then turn it down. With a little practice perfection will soon be arrived at. Some use thin glue, others strong paste; possibly stickfast may do well for the job.

The above query, emanating as it does from a good gardener, is encouraging, showing the growing interest that is being taken by gardeners in bee-keeping.

PACKING SECTIONS OF HONEY.

This requires more attention than is usually given to it. The mistake so many people make is in not packing firmly enough. If sections and glass jars of honey are packed in the same box (which is not a good plan) there should always be a strip of thin wood or stout cardboard placed between them, which will prevent the comb being damaged. That a warning is necessary I am convinced, as quite recently I received a package containing a glazed section and a jar of honey which, owing to bad packing, the section of honey was smashed, whereas had there been a thin strip of wood between the jar and the face of the section the latter would doubtless have arrived in as good condition as when first packed.

In sending honey by rail it is not necessary to send it by passenger train, or to label it, "Glass, with care," as is often done, or double rate will be charged. If well packed it will travel equally well by goods train. Of this I have proof. A few years ago I had several dozen sections that I was anxious to exhibit at a provincial show at which royalty was expected. They had only been taken off the hives a few hours before being sent off, and were unglazed. These were firmly packed in boxes in the same position as they occupied in the hive. Across the ends were placed a double thickness of stout cardboard, and between this and the end of the box, also between the ends of sections and the sides of box, rolls of newspaper were well wedged in, a double thickness of paper was placed over the top of sections, and then another layer of sections as before. Each box contained about five dozen sections, and was nailed and corded in the usual manner. These were addressed to the Bee Department of the show, and labelled, "Honey, with care." After being jolted for several miles over a rough country road they were eventually dispatched by goods train. A few days afterwards, on my arrival at the show, I found my honey packages awaiting me, not a section of which was damaged. These were all disposed of at what we should now term fancy prices.

Since then, when sending sections to tradesmen I have adopted a different plan, which is to be preferred to the above, for unless care is taken in unpacking they may be easily damaged. First of all take a piece of stout paper, or a double thickness of newspaper. On this place six sections; at the ends put a piece of cardboard about 6 inches square, this will allow the edges to be turned over the ends of the sections, and prevent their moving. Wrap the paper tightly round them and tie with string. Place a mark on the outside of package to show which is the top of sections. Continue to make as many packages as are required, then take a box—a Tate's cube sugar box will answer the purpose admirably—place a layer of soft hay over the bottom of the box, on this lay the packages of sections, then another layer of hay and sections till the box is full. Over the top layer of sections place more hay until the lid fits closely to it. All the spaces round the sides of box should be packed with the same material. The lid should be securely fastened down, and the box corded. There is no necessity for the latter if before the box is packed a couple of holes are bored at each end of the case, so that a stout rope can be inserted for handles.

If carefully packed on the above lines, and marked "Honey, with care," sections may be safely dispatched by goods train without any serious risk of damage. Care must be taken to place the sections in the same position they occupied in the hive. It is a good plan to put a mark on the top of the sections when removing them from the hive. It will save a great amount of unnecessary trouble afterwards.—AN ENGLISH BEE-KEEPER

TRADE CATALOGUES RECEIVED.

- W. Attlee, Burpee & Co., Philadelphia.—*Sweet Peas*.
 J. Cocker & Sons, Aberdeen.—*Roses, Seeds*.
 Dobie & Dicks, Deansgate, Manchester.—*Seeds*.
 P. Farquhar & Co., Boston.—*Seeds*.
 W. H. Gabb, St. Bernard's Road, Olton, Warwick.—*Violas and Pansies*.
 F. A. Haage, jun., Erfurt.—*Seeds*.
 T. Lambert & Söhne, Trier, Rheinprovinz.—*Seeds*.
 W. C. G. Ludford, Four Oaks, Sutton Coldfield.—*Cacti and Succulent Plants*.
 Smith & Simons, 16, Buchanan Street, Glasgow.—*Seeds*.
 N. Smith & Son, 167, West Maumee Street, Adrian, Michigan, U.S.A.—*Chrysanthemums*.
 Sutton & Sons, Reading.—*Farm Seeds*.
 A. F. Upstone, Market Place, Rotherham.—*Seeds*.
 Vilmorin, Audrieux et Cie., Quai de la Megisserie, Paris.—*Dahlias and Cannas*.
 R. Wallace & Co., Colchester.—*Bulbs for Spring Planting*.



•• All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Addresses (C. S. N.).—A post-card has been sent to you giving the desired information. If it fail to reach you please send a more complete address.

Pruning Maiden Apple, Pear, and Plum Trees (W. W.).—For pyramids cut them down to within 15 inches of the ground or 1 foot from the junction of stock and scion to a good bud, so as to secure a strong leading growth. If the Plums have any side growths shorten them to two or three buds, leaving most at the lower part and fewest at top—pyramid shape. Single oblique cordons will not need any pruning, and must be cut off (except the terminal bud is a fruit bud), as at an angle of 45° they will push growths down to the base. If they have any laterals shorten them to one bud. For double oblique cordons shorten the trees to 12 inches, the uppermost bud left being on the low side and next below on the upper side of the growth when the trees are planted in their oblique position. On these two buds depend for shoots to form the cordons. Of the Apples, Lord Grosvenor, Warner's King, and Bramley's Seedling are the strongest growers, next them King of the Pippins and Cox's Orange Pippin, Ecklinville and Lane's Prince Albert in degree downwards. The last named is only suitable for very low cordons.

"Flights" (or Refuse from Carpet Works) as Manure (H. B.).—As a fertiliser it has a low nitrogenous value, but the substance has special importance where a slow decomposing manure is desired. "Wool waste" has long been used by market gardeners and Hop growers, and we used it nearly fifty years ago. The market gardeners and Hop growers like it because it is light, therefore easily portable, readily applied, can be dug in during winter operations, decomposes slowly, and therefore lasts a long time. It is, however, of very variable quality, sometimes not containing more than 1 per cent. nitrogen, many samples of so-called "wool manure" not being wool at all, but cotton, and practically worthless. "Flights," when of good quality, contain not less than 8 per cent. of ammonia, and the value per unit 5s. to 7s. 6d. Your sample appears to be good, and will act beneficially during the next three years, as its ammonia is yielded slowly. You say nothing as to the quantity used, which is a matter of importance. One to two tons per acre is the usual amount applied. As for its value as an insecticide that depends on the dye, which in your sample is aniline, prepared from benzole or benzene, one of the numerous products of coal tar, and consisting of hydrogen and carbon (C₆H₆). Benzole, acted on by nitric acid, produces nitro-benzole (C₆H₅NO₂), and this, again treated with nascent hydrogen, generally produced by the action of acetic acid upon iron filings or scraps, produces aniline (C₆H₇N). It will, therefore, have considerable insecticidal value. Mixed in the soil at the rate of quarter hundredweight per rod in the autumn it has, we are told,

acted beneficially against eelworm. That it will act well against grubs there is no reason to question; but as for clubbing, that depends on the form, for almost anything with a thickened root is termed "clubbed," no matter what the cause may be—eelworms, maggots, grubs, or finger-and-toe fungus. We shall be pleased to have the results of your experiments with "Flights," especially as we have seen the sample, if the amount used per area of land be given, and the crops grown on it stated.

Apple Jolly Beggar (*R. P. Jones*).—This useful variety (fig. 33) is very productive either as a bush tree on the Paradise stock or as a standard on the Crab; in fact, Dr. Hogg considers its great merit to be its extreme fertility, small bushes producing abundance of fine yellow fruit. He describes it in the "Fruit Manual" as a first-rate early cooking Apple from August to October, the tree bearing very

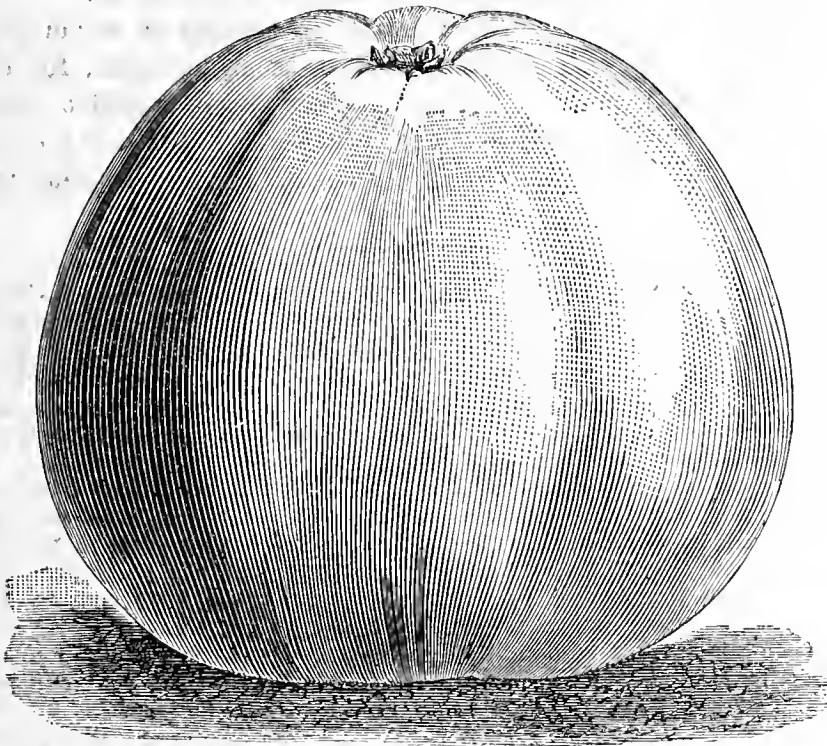


FIG. 33.—APPLE JOLLY BEGGAR.

early, and considers it to be one of the most useful varieties for garden culture. The fruit is firm, heavy, and keeps well. It is of about medium size, 2½ inches wide and 2 inches high; roundish oblate. Skin pale yellow, with an orange tinge next the sun, and strewn with russet dots. Flesh white, tender, juicy, sweet, briskly and pleasantly flavoured.

"Worm" Destroying Tomato Plants (*H. G. G.*).—The "very small worm with a black head" taken from the centre of a small Tomato plant reached us without the head, the frontal segments being crushed beyond recognition. We, however, know the creature well enough. It is the larva or "wireworm" of the smallest of the click or skip-jack beetles (*Elatér sputator*, *Fab.*), and eats its way into the seedling plants, being very fond of Tomatoes and Potatoes. It is also partial to young Carrots, and above all grasses, burrowing in their root stems. The mischief it works in Tomatoes is frequently not discovered until the plants collapse and are beyond remedy. The best thing we have tried against them is kailit, in bad cases, 7 lbs. per rod, 4 ozs. per square yard; and in ordinary cases of infection half those amounts respectively. For plants in pots we have used a quarter of an ounce to a pint of water, or 2 ozs. to a gallon, and placed small plants in a shallow vessel, such as a dripping tin or foot bath, and watered them with the solution, so as to make sure that the soil was thoroughly soaked through. Another plan and better, but more troublesome, is to stop the holes in the pots with a little tempered clay, and then water with the solution so that it stands or appears on the surface, allow to soak five minutes, then remove the clay from the holes of the pots. Soluble phenyle, one in 100 parts water, will also kill the wireworm. Tomatoes, however, root so quickly that we should not hesitate to turn the whole of the plants out, wash off the soil, and examine them for wireworm, removing the grubs, if any, and repotting in soil from a fresh source.

Names of Fruits.—*Notice.*—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. They should be sent on the first indication of change towards ripening. Dessert Pears cannot be named in a hard green state. (*N. N.*)—Golden Winter Pearmain.

(*J. F. D.*).—Brabant Bellefleur. (*E. Semper*).—1, Brabant Bellefleur; 2, Winter Greening; 3, Adams' Pearmain; 4, Maltster. (*F. R. B.*).—1, Cox's Orange Pippin; 2, Bramley's Seedling; 3, Lady Henniker; 4, Beauty of Kent; 5, Wellington (Dumelow's Seedling); 6, unknown, probably a local seedling.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*A. McM.*).—Most of your specimens were too small for positive identification, besides arriving in a withered state through inefficient packing; possibly they were—1, *Adiantum pubescens*; 2, *A. assimile*; 3, *Blechnum*; 4, *Asplenium flaccidum*; 5, *Asplenium Adiantum nigrum* or *Davallia canariensis*; 6, a *Blechnum*. (*K. W. G.*).—1, *Begonia manicata*; 2, *Zygopetalum Mackayi*; the *Cypripedium* is too poor a flower for anyone to give a decisive answer as to its name. We are uncertain of the foliage plant, please send specimen when in flower.

COVENT GARDEN MARKET.—FEBRUARY 17TH. FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, $\frac{1}{2}$ sieve	1	3	to	2 6	Lemons, oase	11	0	to	14 0
Filberts and Cobs, per 100lb.	0	0	0	0	Plums, $\frac{1}{2}$ sieve	0	0	0	0
Grapes, per lb.	1	3	2	3	St. Michael Pines, each ..	3	0	8	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Asparagus, per 100	0	0	to	0	0	Mustard and Oress, punnet	0	2	to	0	4
Beans, $\frac{1}{2}$ sieve	0	0	0	0	0	Onions, bushel	3	6	4	0	
Beet, Red, dozen	1	0	0	0	0	Parsley, dozen bunches	2	0	3	0	
Carrots, bunch	0	3	0	4	0	Parsnips, dozen	1	0	0	0	
Cauliflowers, dozen	2	0	3	0	4	Potatoes, per owt.	2	0	4	9	
Celery, bundle	1	0	0	0	0	Salsafy, bundle	1	0	1	0	
Coleworts, dozen bunches	2	0	4	0	0	Seakale, per basket	1	6	1	0	
Cucumbers	0	4	0	8	0	Scorzoner, bundle	1	6	0	0	
Endive, dozen	1	3	1	6	0	Shallots, per lb	0	3	0	0	
Herbs, bunch	0	3	0	0	0	Spinach, pad	0	0	4	0	
Leeks, bunch	0	2	0	0	0	Sprouts, half sieve	1	6	1	9	
Lettuce, dozen	1	3	0	0	0	Tomatoes, per lb.	0	4	0	0	
Mushrooms, per lb.	0	6	0	8	0	Turnips, bunch	0	3	0	0	

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arbor Vitæ (various) per					Ferns (small) per hundred	4	0	to	6	0
dozen	6	0	to	36	0	Ficus elastica, each	1	0	7	0
Aspidistra, dozen	18	0	36	0	Foliage plante, var. each	1	0	5	0	
Aspidistra, specimen plant	5	0	10	6	Genista, per dozen	10	0	12	0	
Azalea, per dozen	24	0	42	0	Hyacinths, large, per dozen	6	0	12	0	
Chrysanthemums, per doz.	6	0	12	0	" (Roman), doz. pots	6	0	8	0	
Cinerarias, per dozen ..	10	0	12	0	Lycopodiums, dozen	3	0	6	0	
Cyclamen, per dozen ..	9	0	18	0	Marguerite Daisy, dozen ..	9	0	12	0	
Daffodils, per dozen ..	6	0	10	0	Myrtles, dozen	6	0	9	0	
Dracæna, various, dozen ..	12	0	30	0	Palms, in var., each	1	0	15	0	
Dracæna viridis, dozen ..	9	0	18	0	" (specimens)	21	0	63	0	
Erica, per dozen	9	0	12	0	Poinsettia, per dozen	9	0	12	0	
" hyemalis, per dozen	10	0	15	0	Primula sinensis, per dozen	4	0	6	0	
Eunonymus, var., dozen ..	6	0	18	0	Tulips, dozen pots	6	0	9	0	
Evergreens, in var., dozen	4	0	18	0	" in boxes, per dozen	0	8	1	6	

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Anemones, dozen bunches..	2	0	to	4	0	Mignonette, dozen bunches	3	0	to 6 0
Arum Lilies, 12 blooms ..	3	0	4	0	Mimosa (French) per bunch...	1	0	1 6	
Asparagus Fern, per bunch	2	0	2	6	Narciss, White (French), dozen bunches...	3	6	4 6	
Azalea, per dozen sprays ..	0	6	1	0	Narciss, Yellow (French), dozen bunches ..	1	0	2 0	
Bouvardias, bunch	0	6	0	9	Orchids, various, per dozen blooms ..	1	6	12 0	
Carnations, 12 blooms ..	1	6	3	0	Pelargoniums, 12 bunches	6	0	9 0	
Christmas Roses, 12 blooms	1	0	1	6	Pyrethrum, dozen bunches	1	6	3 0	
Chrysanthemums, dozen bunches ..	3	0	9	0	Roses (indoor), dozen ..	1	0	2 0	
Chrysanthemums, 12 blooms	2	0	6	0	„ Tea, white, dozen ..	1	0	2 6	
Daffodils, dozen blooms ..	0	9	1	6	„ Yellow, dozen (Niel)	6	0	9 0	
Eucharis, dozen	3	6	4	0	„ Red, dozen blooms ..	2	0	3 0	
Gardenias, dozen	4	0	6	0	„ Safrano (English), dozen..	1	0	2 0	
Geranium, scarlet, doz. bunches ..	6	0	9	0	„ Pink, per dozen	3	0	6 0	
Hyacinths (Roman), 12 sprays, and per bunch ..	0	9	1	0	Smilax, per bunch	6	0	7 0	
Lilac, White (French), per bunch ..	8	6	5	0	Snowdrops, dozen bunches	1	0	2 0	
Lilium longiflorum, 12 blooms ..	6	0	8	0	Tuberose, 12 blooms ..	1	0	1 6	
Lily of the Valley, 12 sprays, per bunch ..	0	6	1	0	Tulips, dozen blooms ..	0	6	1 6	
Marguerites, 12 bunches ..	2	0	3	0	Violet Parme, per bunch ..	3	0	4 0	
Maidenhair Fern, per dozen bunches ..	9	0	10	0	„ per doz. bunches ..	1	6	2 0	
					„ (French), per dozen bunches ..	1	0	2 0	



THE MANURE HEAP.

HOWEVER wisely the tillage merchant may charm, and however loudly agricultural science may preach as to the superiority of artificials over time-honoured muck, there are still numberless

farmers who have unlimited faith in its efficacy, and not without good reason, for good yard manure is beneficial to all crops, and has a bit of wear and tear about it that is lacking in these hand-to-mouth fertilisers. Still, muck has its drawbacks, the chief being the amount of labour entailed in the filling and carting of it to the land, especially if the field be some distance from the premises.

It is inevitable that manure will continue to be made and used, for cattle rearing and feeding is too important a part of British agriculture to be discontinued. It is very necessary, however, to get all possible benefit from the dung when it is made. Much has been done in this direction of late by the very general adoption of covered yards, but greater intelligence is yet required to fully utilise the liquids which in too many cases are allowed to escape into the watercourses before being deprived of the valuable manurial constituents which they contain.

We have heard it suggested that we should sell all the Wheat straw now used as bedding, and use peat moss in its place. The manurial value of the straw is about 8s. per ton, the selling value about 40s. As peat moss is a much more valuable absorbent than straw there is much force in the arguments in its favour, especially if the comfort of the animals is left out of consideration.

The low value of straw as an absorbent will be seen by a study of the appended table. It is noticeable that powdered peat is even more valuable than the moss, and that even peaty soil has a considerable value as a foundation for the manure heap.

1000 lbs. of Wheat straw will absorb	1 $\frac{3}{4}$ lbs. of ammonia.
1000 lbs. of sawdust	" $\frac{1}{2}$ lb. do.
1000 lbs. of peat moss	" 8 $\frac{3}{4}$ lbs. do.
1000 lbs. of sandy earth	" $\frac{3}{4}$ lb. do.
1000 lbs. of powdered peat	" 11 $\frac{1}{4}$ lbs. do.
1000 lbs. of limy earth	" 1 $\frac{3}{4}$ lb. do.
1000 lbs. of fresh soil	" 2 $\frac{1}{4}$ lbs. do.
1000 lbs. of garden soil	" 5 $\frac{1}{2}$ lbs. do.
1000 lbs. of peaty soil	" 6 $\frac{3}{4}$ lbs. do.

It would appear that whether we use peat moss litter as litter or not, we should put a layer of it or of powdered peat at the lowest part of our yards, also beneath and immediately around all heaps of moist manure. For cattle in stalls and boxes very little straw need be used, as they can be made quite comfortable with peat moss, which would absorb all liquids, and nothing would be lost. How important the preservation of this liquid manure is will be understood by a perusal of the following table, giving approximately the constituents of the manure and urine of the principal farm animals. The manure of the following four animals contains—

Per 1000 lbs.	Sheep.	Pig.	Horse.	Cow.
Nitrogen ...	7 $\frac{1}{2}$	4 $\frac{1}{2}$	5	3
Phosphoric acid ...	6	5	3 $\frac{1}{2}$	2 $\frac{1}{2}$
Potash ...	3	25	3	1
The urine contains—				
Nitrogen ...	14	3	12	8
Phosphoric acid ...	0 $\frac{1}{2}$	1 $\frac{1}{4}$	0	0 $\frac{1}{2}$
Potash ...	20	2	5	14

We see here that as regards two of the principal farm animals—the cow and the horse—the liquids are two and a half times as rich as the solids in nitrogen, that most costly of manures, whilst the value of the potash in the urine of cattle is very great indeed. Of course if this liquid can be run into a tank and afterwards distributed on the land by the aid of a liquid manure cart more powerful absorbents are not necessary, otherwise it seems certain that the use of peat moss as litter, either wholly or in part, must result in great saving of much valuable fertilising material. If straw can be sold at 40s. and peat moss bought at 25s. there is a margin of 15s. per ton in favour of the use of the latter, apart from the advantage gained in the greater absorption of liquids.

There are few large estates where real freedom of sale is allowed, but if agriculture in this country is to hold its own more freedom will have to be the rule rather than the exception. The best safeguard that a landlord can have against undue impoverishment of the soil is the possession of a good head of live stock by his tenant. As long as his stock is kept up to the mark

let him sell what he likes. If he can sell for 40s. something that he can replace for 15s. by all means let him do so; restriction in selling means restriction of power of rent paying, and is contrary to all mercantile principles.

We hold a very strong opinion that the amount of nitrogen that reaches the soil through the medium of farmyard manure under present systems is very small, and that the said manure owes more of its popularity to its phosphoric acid and potash than to its ammonia. It used to be a general custom to turn the manure heap soon after leading it from the yards, this prevented violent heating and loss of ammonia; but now we never see a man turning manure.

Unless we can take means to preserve the fertility of our muck, we had better get it spread on the soil as soon as made, for in winter there can be no loss from evaporation, and if spread on the ground thinly, none from heating. Much of the valuable constituents may be washed by rain into the soil, and that is where we want them to be.

WORK ON THE HOME FARM.

Frost, snow, rain, and flood succeeded each other in rapid succession, and farm work was much as it was last week. So far, little time has been lost; but unless we have finer weather for the remainder of the month work will begin to get into arrears, and they are always difficult to make up. The land is just getting free from frost, but though a plough would work it would not be advisable to begin again until the land is a little drier.

Many farmers are anxious to be drilling Oats, and naturally so after our experience of last harvest; the early bird then had the worm with a vengeance, all late crops being completely ruined. We had much better wait for a decent seed bed, however, as grain put in badly seldom—in fact, we might say never—does well. There is certainly nothing to be gained by sowing before March under present circumstances.

Turnip land should be ploughed up close to the sheep fold as soon as it is dry enough, and fallows may be crossed, but we would rather leave them alone for the present, unless it were on very light land in a foul condition, when time might be a matter of great importance. We would prefer to still give the horses a bit more rest, and keep all hands to repairing fences and drains, ditches and hedge bottoms rather than do harm by getting them on the land before it is fit; this only applies to medium and heavy soils. Very light, dry, and sandy land may be ploughed or worked any time.

We have had the lambing flock on Swedes for three weeks. They had previously got a little low in condition, and they required an extra forcing diet. They are now within ten days of lambing, and are coming off Swedes to Mangolds on grass. A few Oats and a little cotton cake given now until lambing make a great difference in the milking capabilities of the ewe, and are of much more use than given after lambing.

The use of drains has been amply illustrated to us during the recent flood. We had a field in process of being drained, and the quantity of water absolutely pouring down the pipes just put down was a revelation.

OUR LETTER BOX.

Wheat (E. M.).—If the Wheat is a good sample and the rick perfectly free from vermin—i.e., rats and mice—we should advise holding. The world's Wheat crop is deficient, harvest is far off, and we look and hope for a rise in price. If mice abound thresh at once.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1897.	Barometer at 32°, and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
February.										
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 7	29.883	36.9	35.2	N.W.	38.0	42.1	35.8	72.1	31.3	—
Monday .. 8	30.311	36.2	33.8	S.	36.9	48.4	27.9	49.2	22.6	0.095
Tuesday .. 9	29.998	45.1	47.2	W.	38.2	52.1	36.0	56.4	32.0	0.010
Wednesday 10	30.156	45.4	42.0	N.	40.8	50.3	43.7	60.0	41.4	0.168
Thursday .. 11	30.076	42.1	41.8	E.	41.2	43.1	41.6	45.1	41.2	0.038
Friday .. 12	30.216	38.2	36.9	E.	40.8	42.1	37.4	47.2	36.7	—
Saturday .. 18	30.059	40.7	39.4	S.	40.0	48.6	38.2	53.0	36.1	0.032
	30.104	41.1	39.5		39.4	46.7	37.2	54.7	34.3	0.343

REMARKS.

- 7th.—Bright sun in morning and frequently in afternoon; fine evening.
8th.—Slightly foggy generally, but faint sunshine about 11 A.M.; rain from 8 P.M. to 11 P.M.
9th.—Occasional drizzle early; mild fair day.
10th.—Fine and mild, with a gleam of sun at 1.30 P.M.; rain from 9 P.M.
11th.—Rain till 8 A.M., then dull, with drizzle or slight rain almost all day.
12th.—Overcast, but fair.
13th.—Fair early; frequent drizzle and rain after 11 A.M.
Much milder and rather damp.—G. J. SYMONS.

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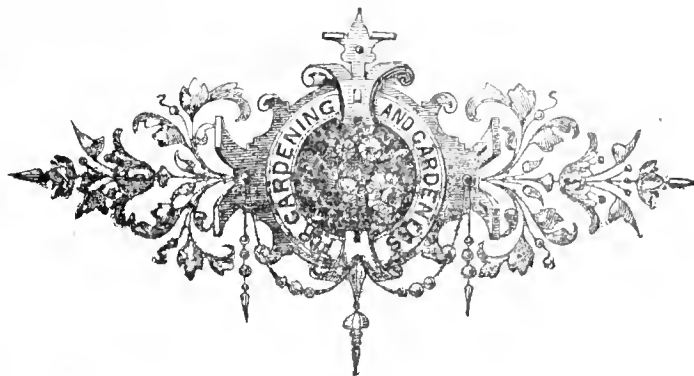
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THE QUEEN'S SEEDSMEN, 1897

**237, 238, & 97, HIGH HOLBORN,
LONDON, W.C.****Journal of Horticulture.**

THURSDAY, FEBRUARY 25, 1897.

TREE PRUNING.

TO the lover of trees, or rather with those whose love begets that sympathy which surpasses mere enjoyment, the fostering hand will never withhold the little attentions they require, nor will the critical eye fail to note those unhappy examples so frequently met with, proving, as they do, that "Poverty and Neglect sharpen the scythe of Time." Surely no more pleasing duty calls for an adequate share of the gardener's attention than that embraced by our subject. From observation, extending over many years, over a considerable area of the United Kingdom, with many peeps into private places, one is tempted to speak strongly upon a subject that is felt deeply. With all our vaunted progress in gardening in its broadest sense, are gardeners as a class taking unto themselves the full responsibility of this matter, or even feeling its weight? Neither the one nor the other I believe, and if not, why not?

On the one hand, we seldom find our experienced workers expatiating upon the matter beyond a passing notice of the subject in their descriptive notes, and so far as our budding gardeners are concerned, even this is yet conspicuous by its absence from their own special "domain" in these pages. Promising as those pages—"The Young Gardeners' Domain"—are of a bright future, this is not promising; I am inclined to say it looks bad, inasmuch as it is very undesirable that our young men, whose inclinations, judging by their writings, are warped to the glass houses or the flower beds, should develop a one-sided tendency. It would be a matter for regret, to me at least, if these remarks were regarded as a disagreeable potion, being simply compounded as a stimulant, which we should like to see operative with them. Not yet, perhaps, in a practical sense, but in something shown by their pens of an awakening interest in a subject which cannot but elevate their thoughts and widen their ideas, though still legitimately confined within the boundaries of their vocation.

We need not trench on "An Old Boy's" ground, from which will doubtless spring many hints to that end, but it is not too much to ask our young gardeners to diverge from the glass-

covered track, and take some little notes in their leisure hours of tree life in the locality; to detail the features of any notable examples, to tell us what they see, and what they think, may I add, upon the matter. One could then judge whether these pessimistic views are justified or not, whilst at present there is a lack of evidence to show that any thoughts on this subject are occupying their minds.

Ere turning to the practical part of our text I would ask young gardeners to contemplate the loftiness of our theme by referring to the remarks of a writer (unknown to me) upon the Wellingtonia, now so well known to us, in its infant stage. He says, "These mammoth trees of the Sierra Nevada for antiquity and size surpass all the vegetable products of the known world . . . Coeval with Solomon and David, there they have stood, and have continued to grow while kingdoms, empires, and dynasties have arisen and disappeared, and there they stand, the living patriarchs of 3000 years! These giant productions of the vegetable kingdom appear to average from 3000 to 4000 years; two of them (two lives) would, therefore, span the entire period of historical time, from the days of Adam to the present period?" Since the above was written it may, or may not, be qualified in some degree by more recent discoveries among the Eucalypti of Australia, in any case it cannot stultify our feelings of veneration and regard.

Another conclusion is, of course, clearly pointed—viz., that these particular trees have been very well able to take care of themselves, although probably they are the survivors of the fittest. It is, I grant you, a far-fetched example, but sufficiently near to our purpose I trust to draw our minds for the nonce from cherished, and rightly cherished, little things of plant life to our own indigenous trees, but few of which claim some simple attention, and to many of which such is absolutely necessary. From a long study of the subject I conclude that a very high percentage of those disasters frequently occurring in tree life are preventable by the "stitch in time." A few examples of the evil will serve to illustrate this. One is furnished by a grove of magnificent Silver Firs, the bulk of which had developed either twin or triplet leaders, possibly arising from a check to the legitimate leader in early life, but it had gone on unheeded until it was too late to mend. These trees being the noblest examples of their kind I have met with, they were as highly appreciated by many tree lovers who saw them in their prime, but within the space of one decade it was lamentable to see how many of them were laid low or disfigured by dismemberment. This was particularly the case with those having triplet stems, forming a handsome arboreal candelabra, with the side stem springing in a graceful curve from the main trunk about 10 feet from the base, and from thence of equal dimensions to the legitimate leader.

These trees were, I suppose, during the period of my observation just ripe for destruction either by wind or snow, and on one occasion at least the calamity proceeded from no other exciting cause than the moisture superimposed upon the foliage by an exceptionally still damp day, which brought the crack of doom. Noticing the disposition of these bastard leaders, springing at right angles from the trunk, whereby the whole weight is devoid of a basis of support, obviously this Nemesis of neglect must come sooner or later, generally later, and the later the larger the sacrifice. However, so these noble trees disappeared. With some fine and much-prized Tulip Trees considerable ingenuity was displayed in tying their limbs together with chains and iron bands, also a matter of considerable labour, and not quite satisfactory when accomplished. In both of the above instances the survival of the fittest pointed a forcible moral. These were those whose vigour and growth were concentrated in the single trunk, with the whole weight directly vertical. Needless to say they were shapely trees, well balanced, and in this case probably the result of accident; yet all those which suffered or came to an untimely end might by forethought have been prepared to withstand ordinary adversity.

Unfortunately, these things are not forced upon our notice till

late in life—tree life; but I have seen a great deal of laborious heavy saw-pruning carried out in the commendable anxiety to set matters right late in the day, all of which work forethought and the pruning-knife could have done in a moment infinitely better at the early stage, and at what a saving of arboreal vital force and energy. Respecting our indigenous trees the same moral applies in more or less degree. Many of them are disposed to lose their balance through mis-directed efforts on the part of one or more branches, which in their excess of strength leave an opening for mutilation at least. From a picturesque point of view some will not see the matter in the same light. We may safely say that there is but little danger of their being deprived of ample examples of their particular lines of beauty. The prostrate giant reclining on its elbows, those delightful forest peeps with trees growing *au naturel*, the Ivy-clad ruin of some noble tree; there is room for all, but a great deal more room for skilled arboriculture in those places we rightly look for it, and too often find it the one thing wanting.

The subject appears to be in direct relation to a gardener's duties. It does not concern the forester; his work is, practically, the production of timber, and moreover the methods of forestry planting are such as are conducive to the development of single, straight stems, leaving but little opening for the evils pointed out, and in any case no opening for my criticism. I trust the gardeners of the future will not only include this subject in their work but also make it a prominent one, and the chief onus of this is upon our young gardeners of to-day. Whether by rail or by road the necessity for it is continually forced upon me when criticising my neighbour's landmarks—his trees.

The saddest thing seen of late is the outcome of some burst of energy on the part of our county surveyor, by which miles and miles of trees condemned to exist by the roadsides are being hewed and hacked at by all sorts and conditions of men, except gardeners, resulting in unsightly stumps, splintered limbs, and in fact every possible kind of pruning to show how *not* to do it. This, however, if within the limits of our text is farther than I intended to go. There is, apparently, more work in hand for our County Council instructors, who more than probably have their hands full already. Yet the subject is one of national interest, for it concerns the public good.—SYLVA.

OUR HARDY PLANT BORDER.

(Continued from page 132.)

WALLFLOWERS.

NOTHING has yielded such good results in the way of fertilisers in the soil both for Wallflowers in the seed and the permanent beds as superphosphate of lime applied as a surface dressing at the rate of 1 oz. to the square yard, and raked in before planting, a sprinkling of nitrate of soda at the same rate as that named for the seed bed (quarter oz. per square yard) being given once after the plants have recovered from the transplanting. No other chemical manure or stable manure produced such vigorous and floriferous plants as this treatment; the flowers both in size and colour surpassed those from other plants, while the time of flowering was prolonged, showing that the plants had not been exhaustively stimulated.

Where there is sufficient space it is as well to allow the seedlings plenty of room at transplanting time. I am exceptionally placed as regards that, and in consequence a distance of 9 to 12 inches has been preferred, for the best results have been found to follow this liberal treatment. If strong, well-developed plants are not obtained before the final planting, a full measure of success must not be expected, and it is surprising what can be done with Wallflowers if the best attention be given to details that seem almost insignificant. It is not only to Wallflowers that this truth applies, for much of a gardener's success depends upon recognising the importance of details, and amongst many sentences worthy of remembrance in that remarkable little work, "Mushrooms for the Million," occurs the following, which was credited to the founder of the *Journal of Horticulture*. "In whatever you do either in writing or working, do not ignore the simplicities that bear upon your object, but attend to what are termed small matters. 'I promote,' said Napoleon, 'the man who is capable of mastering small details; any elephant can lift a hundredweight, few can pick up a pin.'"

The final transplanting of Wallflowers should be completed by the end of August or early in September, at least I have found that indispensable in a cold situation North of London. The plants must have time to recover from the check of removal before the winter sets in, and to insure this they should be lifted carefully with as little injury to their roots as possible, and when the soil is sufficiently moist to adhere to them in a compact ball. The warmth in the earth at that time is sufficient to encourage root action, and we then have our plants in excellent condition for the winter's trial which they pass safely even in severe weather, for few out of many thousands have been lost. They are allowed a distance of 18 inches apart when the plants are very strong.

There are other methods of raising a stock of Wallflowers for flowering later in the season, as seed can be sown early in the year (at the present time for instance) in cool houses or frames, and the plants so obtained can be placed out in March or early April; but the flowering is uncertain and irregular, some will flower in the summer, others in the autumn, and possibly some will flower during the winter in mild seasons, or they may not flower until the following spring. Such plants are useful where flowers for cutting are always in demand, but they cannot be relied upon for a general effect like those raised in May for flowering in the following year. Autumn and winter flowers will also be produced by some of the strongest of the spring plants if left undisturbed, and many a bunch of greatly appreciated blooms have thus been obtained through the dreary months when floral attractions were few out of doors. Cuttings are also easily rooted in early spring or late summer, but this method is only applicable to any varieties which it is desired to perpetuate in their true character, or to the double varieties, though these also are usually increased by seed now. Cuttings taken from the side growths about 3 inches in length, and inserted in pans, boxes, or prepared beds of sandy soil, kept shaded, cool, and moist, will form roots quickly, and can then be transplanted to be treated like the others.

So much attention has been paid to the selection and raising of Wallflowers by seed growers, that excellent strains are now obtainable from the best houses either mixed or in separate colours, and collections of double varieties are offered in eighteen different shades, while single varieties can be had in half that number of tints. Of distinct forms that have been dignified with special names and kept true to character the following have proved under my trial and observation to be the most worthy of note.

Single Varieties.—Dwarf Bedder, very compact and early, in two colours, yellow and reddish brown; Golden Tom Thumb, rich yellow, very dwarf; Cloth of Gold, very bright golden yellow, dwarf; Golden Beauty, also a fine dwarf type of a rich golden tint; Earliest of All, a good yellow, and very early; Harbinger, a well known early variety with bright red flowers; Primrose Dame, a clear primrose tint, dwarf; Eastern Queen, salmon red, very distinct and of good dwarf habit; Early Parisian, rich yellow, compact; Faerie Queen, a delicate pale clear yellow; Purple Queen, a warm purple tint; Ruby Gem, one of the best of the purple coloured forms, with a violet tint underlying the shining petals; and All the Year Round, a dark brown variety, of good habit and very floriferous.

But the two best for effective contrast, in masses or long lines, that I have tried are Blood Red and Belvoir Castle if first-class strains are secured, as can be done if a special request is made to any good seedsman. The Blood Red of the Covent Garden type is of medium height but excellent habit, compact, bushy, and sturdy; but the plants are taller than Belvoir Castle, to which they make a good back row. The flowers are the richest in colour of any known to me, and they also possess a powerful fragrance as compared with some of the varieties. Belvoir Castle is an excellent yellow, the colour is very pure, the habit dwarf, and the abundance of flowers produced by well grown plants is astonishing. The purple varieties and some of the other forms are interesting and attractive in themselves, but are unsuited for massing. The best fitted for this are those with well marked colours, and the shades of yellow and reddish brown harmonise admirably.

It only remains to add that our Wallflowers have proved one of the most attractive features of our border and garden, and this must be the excuse for saying so much about such a simple plant. —A COUNTRYMAN.

(To be continued.)

VIOLAS FOR THE GREENHOUSE.—One of the best uses that many varieties of Violas can be put to is pot culture. Plants from the frame that were put in as cuttings in October should be placed four or six plants around a 6-inch pot, using some good soil and standing them in a cold frame till March. Then transfer them to a cool greenhouse, keeping them near the glass, and they will throw fine potfuls of their chaste flowers. Violas at this time are much appreciated. We grow hundreds of pots every spring, and they are greatly admired.—S. J.

FLOWERING TREES AND SHRUBS.

DECIDUOUS.

(Continued from page 140.)

ON a bright spring day, when Nature is clad in her freshest garb, how brilliant in appearance is a mass of flowering Broom! The common yellow form (*Cytisus scoparius*) may often be seen in full splendour upon some wild British heath. We see it sometimes in our gardens, but usually in very small patches; yet there is many an unsightly bank which might be made attractive throughout the year by simply planting upon it in one bold mass of this easily grown *Cytisus*. *C. scoparius grandiflora* produces larger flowers than the older variety, and should, therefore, be

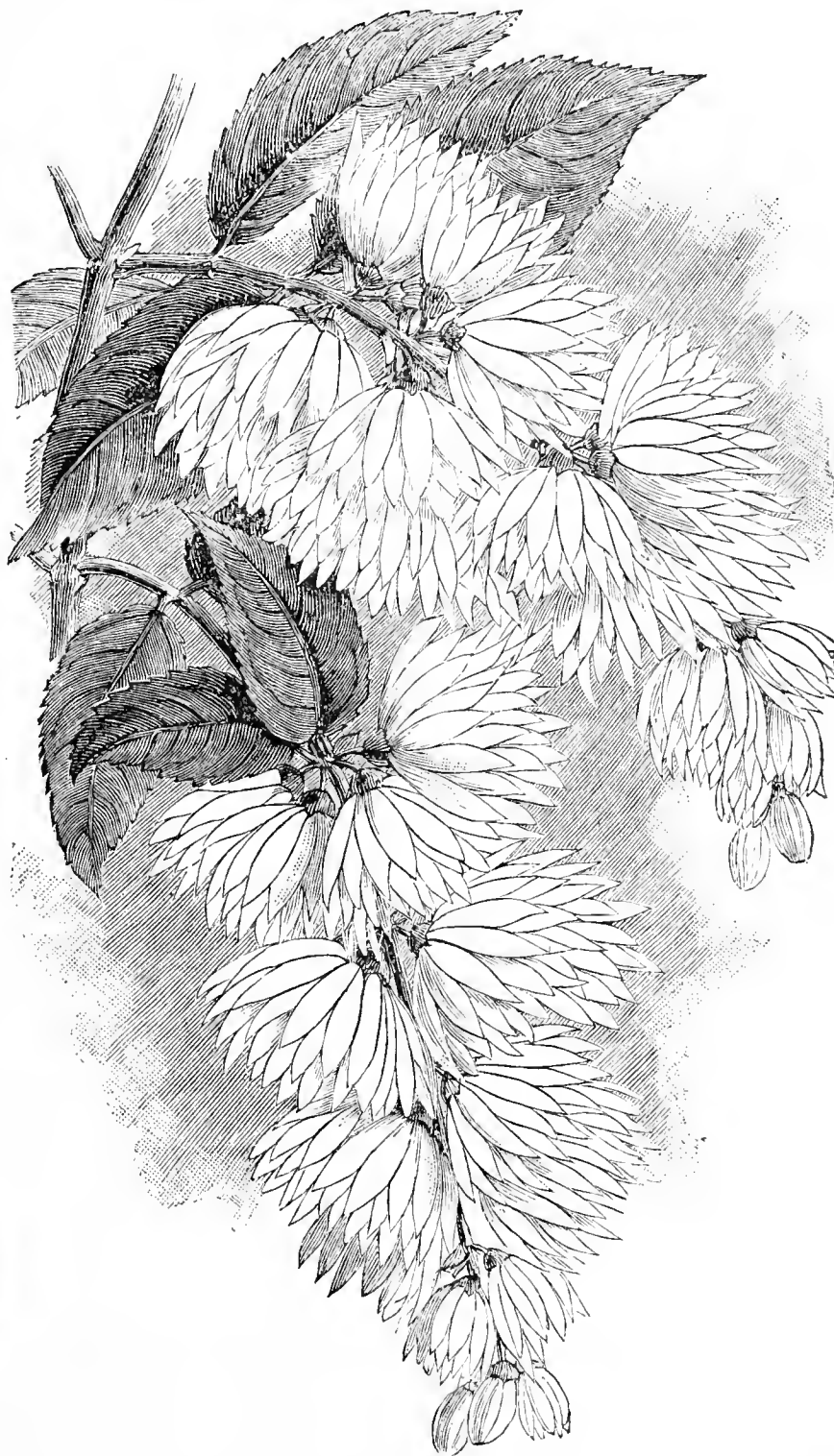


FIG. 34.—*DEUTZIA CANDIDISSIMA FLORE-PLENO.* (See page 154.)

reserved for the most prominent positions. *C. albus* and *C. purpureus* are excellent for planting near or upon a rockery for the sake of giving variety; but for large masses the yellow Broom is, I think, the best. That grand variety of *scoparius* named *Andreas* is perfectly distinct from any other form of the species, the brown and yellow markings of the flowers forming a delightful combination of colour. Fortunately the plants grow freely, and may now be obtained at a cheap rate. They are sure to be largely planted in the future.

The deciduous *Daphnes* are really attractive early flowering shrubs; I have frequently cut showy and deliciously scented sprays of *Mezereum* in January from plants growing in the open air. In planting a sheltered position should, if possible, be selected, in order to take the fullest advantage of its early flowering tendency. The so-called white form I do not care for, but *M. atro-rubrum* should be grown by all.

Deutzias seem to be more generally grown in pots than in

shrubberies, yet there is not the slightest reason why they should not be included in every large collection of flowering shrubs. No one, I think, will deny their great beauty when in flower. Some years ago I saw a good mass of *D. gracilis* flowering grandly in the grounds at Linton Park, near Maidstone; since that time I have seen it growing in a variety of situations, and in each instance it appeared to be quite at home. A sunny position should, if possible, be selected to insure well ripened wood. A mass planted on rising ground, with a few dot plants of *D. scabra*, *D. candidissima* flore-pleno (fig. 34, page 153), presents, when in flower, a chaste combination of fresh green and pure white; such a sight, indeed, that when unexpectedly encountered it invariably elicits a spontaneous expression of admiration. The Forsythias are very pretty yellow flowering shrubs, which display their charms in March and April; they are often employed for covering walls or fences, but are especially valuable for planting in shrubberies or on banks. *Suspensa* and *intermedia* are the most showy varieties.

We have comparatively few shrubs that flower during July and August; one is, therefore, tempted to wonder why *Hibiscus syriacus* (*Althæa frutex*) is not more frequently planted. They are both beautiful and uncommon in appearance, grow rapidly and thrive well in a rather light soil. A few years ago there were several fine specimens in the shrubberies at Preston Hall in Kent. The grounds there are well stocked with flowering shrubs generally, the majority of them having imperishable labels attached, a practice which might with advantage be followed in other gardens. A few of the best varieties of *Hibiscus* are *albo-luteolus* plenus, *albo-plenus*, *bicolor hybridus*, *carneo-plenus*, *elegantissimus*, *Ranunculiflorus*, *violaceus variegatus*, and *rubra plena*.

The culture of *Hydrangeas* has for years received a considerable amount of attention. This is not a matter for surprise, considering the enormous heads of showy flowers they produce. The plants are well adapted for sunny position in the front of shrubberies, for the mixed flower border, or for planting in beds. The latter is a plan not usually followed, but it is well worth trying. *Hortensis*, *H. japonica*, *Thos. Hogg*, and *paniculata grandiflora* are each good varieties to grow. The last named is the most recent addition, and one of the best.

I have often thought that if the *Hypericums* were stove plants which required a great amount of attention their good qualities would be much more frequently proclaimed, but by a peculiar process of reasoning—in which logic plays but little part—the majority of writers seem to arrive at the conclusion that they ought to be ignored because they happen to be easily grown hardy plants, which will thrive and clothe with surpassing beauty odd nooks when other things refuse to grow. *H. calycinum* is one of the very best dwarf shrubs for planting on dry banks, or as a fringe to shrubberies bounded by walks or drives. An open sunny position suits this Rose of Sharon the best, and when such can be given it the plants quickly grow into a dense mass. In the early days of summer each shoot is crowned with a golden starry blossom, and when large breadths are grown the scene is then one of the most brilliant to be met with in a garden. *H. Moserianum*, *H. M. tricolor*, and *H. pyramdatum* are also good varieties, not so well known as the first named one.

For growing against a wall or in the form of a bush *Kerrias japonica* and flore-pleno are very attractive shrubs. The orange yellow colour of their flowers is one not plentiful in other hardy plants during March and April. The only attention necessary in the way of pruning is to remove dead and worn-out shoots each year.

Of the charms of *Laburnums* I need say but little, as they are so well known by all, or perhaps I should say, by all who live beyond the bounds of smoky towns. To those who have the management of large shrubberies I should like to suggest that there may be few positions where *Laburnums* may yet be planted with a distinct gain in regard to effect, for I do not remember to have seen a garden in which they were too plentiful. Some of the best forms of *Laburnum* are *alpinum* (Scotch), *vulgare*, *v. giganteum*, *v. Parkesi*, *v. Wateri*. The last named is an exceedingly good variety of *vulgare*, bearing flowers in very long racemes. The colour is also extra bright.

Magnolias require a separate article to do them full justice, but for the benefit of intending planters I will enumerate a few of the best varieties, all of which are included in our collection. *M. conspicua*, the well known white variety, more generally grown than any other; *c. Soulangeana*, *c. S. nigra*, *glauca*, *purpurea*, *p. Lenne* and *stellata*. The latter has small flowers, and the habit of shrub is very dwarf.

The old variety of *Philadelphus coronarius* has by far the sweetest scent of any, and is, therefore, still worthy of being planted. Many of the newer varieties, however, have more showy flowers. *Grandiflorus* is, I think, the best among the taller-growing

ones, and *macrophyllus* occupies the post of honour among the dwarf bushy ones.

Although the number of species and varieties of *Prunus* grown for ornamental purposes is not large, they nevertheless include several which may be termed "gems" among flowering shrubs. These are:—*P. Pissardi*, which produces a profusion of white flowers in March, and the leaves when fully developed are of a rich reddish-purple colour; *P. sinensis flore-pleno*, and a rose-coloured variety of it, both of which are dwarf in habit of growth. *P. triloba* is quite worthy of the protection of a wall, although it succeeds well as a bush; when studded with flowers of various shades of rose it may truly be described as perfectly lovely.—*H. DUNKIN, Castle Gardens, Warwick.*

(To be continued.)

THE TURNING TIDE.

SLOWLY, almost imperceptibly as the rippling waves recede on the sandy shore, are the days lengthening, and the cheerful February sunshine reminds us that winter is fast losing its sting, and on the horizon, as it were, we can see the gladsome dawn of spring. Everyone is invigorated by the first bright days of the year, and none more than gardeners, for to them it is more than a matter of sentiment. We think of seasons in the past when the earth has been wrapped in the grip of ice and snow right through the present month and the early part of the next. We remember how we chafed at the enforced idleness, as we knew that it meant a rush of work when the weather broke. The diary told the dates upon which early Peas and Beans had been sown on previous occasions, but they had to wait, as also had many another operation; and so that law of rotation so necessary to the harmonious working of a well-conducted garden was for the time being thrown out of order.

But why ruminate on the past, just as we are entering on a new era, and one, too, so full of promise? As I write the balmy sunshine floods the earth, warming and drying with its cheerful rays. Everything seems glad, and after the long dreary time we have passed through the first signs of reviving animation are doubly welcome. Though the winter has been characteristic on account of its mildness, it has not been altogether favourable from a gardener's point of view. So continued has been the downfall of rain that it has been almost impossible to proceed for any length of time with outdoor operations, and there yet remains much to be done in the way of planting and alterations. On the other hand, we must not complain, for springs were empty, and many others beside water companies thought apprehensively of the future. Such fears have now vanished, springs are full to overflowing, and the store of moisture is insured for some time to come.

The tide is turning, and though we are yet only on the threshold of the busy season, the bright days bring their duties. No opportunity should be missed when the ground is in working condition of proceeding with kitchen garden operations. Most gardeners will already have sown the early rows of Peas and Beans, and perhaps are thinking of the Onions. So closely are the past operations of the gardener linked with the present, and the present with the future, that any omission tells its own tale. It is now that the benefits of rough digging and ridging in the autumn and early winter are felt. To some such work appears to be considered of little importance, yet why this is so it is difficult to explain, for we need not the aid of science to tell us that the action of the weather not only sweetens and pulverises the soil but renders it in good condition for the reception of the seeds in the spring. The question of labour is sometimes advanced as an excuse, but that is only a lame one, for double the work is necessary now where the operation was neglected, without the benefits.

Turn to the flower garden, and the same signs of activity present themselves, while the aspects are still more cheerful. There are the clumps of Snowdrops, so pure and chaste, the first emblems of spring. Who can look on them without feeling cheered and invigorated? One day we see nothing but the green points peeping through the surface, then the diminutive flowers, the stalks of which lengthen daily, and the blooms increase in size till we have the full-blown Snowdrop. One of the most charming pictures I know at the present time is a large kitchen garden, intersected in the usual way by walks at right angles. Along the verges of these are rows of Snowdrops planted close to the edging tiles, without encroaching on space required for other crops. It would be difficult to imagine anything more pleasing than these unbroken lines of pure whiteness in the February sunshine, and in many gardens the ever popular bulb might be so planted to great advantage.

Crocuses, too, are opening, and the herbaceous border shows many signs of floral life. The other day I came across the bright blossoms of *Omphalodes verna*, and several of the *Hepaticas* are

now very charming. Lovers of hardy flowers are daily watching their favourites in anxious expectations. To such the early spring has a particular charm, and one is apt to envy the enthusiast who has the facilities for growing them in quantity. How interesting are these habits, and with what unfailing regularity they follow each other in rapid succession! But the singing of their praises shall be left to abler pens than mine. Just a word about the Daffodils, which are peeping through and growing stronger day by day. Last week's Journal told of 22 tons of spring flowers being despatched from the Scilly Islands one day recently. What an industry this has become! and how much the inhabitants of the genial isles owe to these accommodating spring flowers! In our colder climate we must be content to wait a little longer.

"Ah! this does one good," said a gardener the other day, as he stood in the early vinery watching the invigorating effect of the sunshine on the foliage. In no portion of the garden is the turn of the tide felt with greater benefit than in the early vineries and Peach houses. In the absence of sunshine the foliage of the Vines is weak and without substance. Growth is slow, and even with great care mildew makes itself seen. The first bright days, however, make a difference; improvement is apparent, and the leaves rapidly take that green and leathery appearance that all gardeners like to see. How helpful, too, it is to the setting of the blossoms in the early Peach house, and also to the first plants of forced Strawberries; indeed, where can we look without seeing beneficial effects from February sunshine? Yet pessimists shake their heads and say we are getting on too quickly, and shall have to suffer for it when March comes in. Let us, however, make the most of the present and hope for the future.—MONOCLE.



MADAME CARNOT.

MOST readers of Chrysanthemum notes in the Journal will remember that a collection of cut blooms was staged at the Ghent Show. These blooms were contributed by several members of the National Chrysanthemum Society, and included in the collection was a bloom of Madame Carnot sent from the gardens here, and which received a special mention from the Jury. I am very pleased to say that I have just received through Mr. T. Bevan a certificate from the Ghent Society for the bloom mentioned above. We staged nine blooms of Madame Carnot last November at two shows, and were awarded premier prize for the best bloom in the show in each case. Seven of the nine blooms figured in first-prize stands, and two in second-prize stands, and were exhibited at the Highgate and Finchley Chrysanthemum Exhibitions. We were also awarded the prize for the best bloom in the Highgate Exhibition with Madame Carnot in 1895.—H. A. PAGE, *The Gardens, White House, New Southgate.*

A TOUR ABROAD BY A HAPPY TRIO.

(Continued from page 99.)

THE journey to Paris was, like most of the travelling, done at night, and we consequently had little opportunity of seeing the country through which we passed. After leaving the Belgian frontier we could not fail to notice that we were traversing a busy industrial part of France, and one large town was conspicuous by the lurid glare thrown upon its buildings from numberless furnaces and lofty chimneys, suggesting very vividly that part of our native land known as the Black Country. The express steamed into the Gare du Nord at Paris shortly before midnight, and we beheld a friend waving his umbrella to attract our attention. We were quickly at the hotel, and there found Mons. Ernest Calvat, and learned we should have congenial company.

Despite the lateness of the hour, we strolled for a time up and down the Boulevard des Italiens and the Boulevard Poissonnière, which at midnight are as densely thronged with foot passengers and vehicular traffic as they are at midday, the numerous cafés and restaurants being all brilliantly lighted up, and the whole scene well worth a visit. Though early morn before we retired to rest we had to rise at half-past six so as to breakfast and be at the Palais de l'Industrie by eight, when the judging began. This operation was a somewhat arduous one, for the method of staging the exhibits varies considerably from that adopted in England, the exhibits in the same class being often in quite different parts of the building, and consequently necessitating much needless running about. The main features of the show have been given in a former issue of the Journal, but there are a few items of interest that may be usefully inserted here. The judging was performed by six sections of the Jury, the first three being for Chrysanthemums, the fourth for fruit, fruit trees, and ornamental shrubs, the fifth for foliage and flowering plants, bouquets, and subjects for the decoration of apartments, and the sixth for market garden produce.

At the hour appointed the members of the Jury were called into the

Secretary's office, and the roll was called. Each member was then supplied with a stiff covered book of tabulated forms and a lead pencil. The forms contained columns for the No. of the class, the No. of the exhibitor, the nature of the exhibit, the points allotted, the award made, and remarks. When the whole proceedings were over the Secretary of each section wrote out a formal report, which was signed, and then transmitted to the proper authority, presumably the Secretary of the Society, under whose auspices the Show was held.

The next part of the first day's performance was the luncheon offered to the Jury. This took place at the famous Restaurant Ledoyen, only a stone's throw from the Exhibition Hall. Mr. Viger, formerly Minister of Agriculture, and now President of the National Horticultural Society, took the chair, there being a large number of eminent French horticulturists present, besides the members of the Jury. After other toasts the Chairman gave the "Health of the Foreign Members of the Jury," in a speech that was warmly received, to which I replied in my best French. Handshaking, introductions to new friends, the renewing of old acquaintances occupied some time, and then we returned to the Palais de l'Industrie. But what a sight! When we left the building had not been opened to the general public; when we returned there was a concourse of visitors, all crowding in as hard as they could go, and waiting their turn with heroic patience.

Hearing that we should have no time to go to Grenoble, Mons. Calvat had specially come to Paris to meet us, with seven well-known members of the Chrysanthemum fraternity. We had a most sociable dinner with the great grower. Our host was in the best of spirits, for after a long series of triumphs elsewhere his success in Paris that day was only another tribute out of many to his skill as the foremost producer of new seedlings. He had carried off the special gold medal presented for competition by the Minister of Agriculture, to say nothing of half a dozen more, and had been awarded more first-class certificates for his novelties than almost all the other exhibitors of new seedlings put together.—C. HARMAN PAYNE.

(To be continued.)

NATIONAL CHRYSANTHEMUM SOCIETY.

ON Monday evening last the annual general meeting of the members of this Society was held at Anderton's Hotel, Fleet Street, Mr. R. Ballantine occupying the chair. After the minutes of the last annual general meeting had been read and confirmed, the Secretary submitted the report and financial statement for the past year, and also a statement as to the reserve, all of which were considered as being eminently satisfactory, and reflecting the greatest possible credit on the Executive. The following is the text of the report.

REPORT OF THE COMMITTEE, 1896.

In presenting their annual report and statement of accounts for 1896, your Committee can refer with pride and satisfaction to the remarkable success which attended the celebration of the Jubilee of the Society in November last. The programme of the Committee, liberally conceived, was carried out with spirit and with a measure of *éclat* beyond the most sanguine expectations of the Executive.

The widespread interest taken in the Jubilee was shown from the fact that the large sum of £382 6s. was raised as a special Jubilee Fund. The two exhibitions held during the four days set apart for the celebration were on an extensive and imposing scale; the extent of the competition and its keenness in some of the leading classes was almost unprecedented. Groups, specimen plants, and cut blooms of Chrysanthemums were shown of the highest quality, while the display of fruit and vegetables—the latter mainly in response to the valuable special prizes offered by several of the leading seed houses in the kingdom—was of so extensive a character as to establish a record in London exhibitions. Among the many attractive special prizes offered one was of a gratifying international character—a gold medal presented by the American Chrysanthemum Society. The banquet was a social observance indispensable to such an occasion, and was carried through by the President in a way which did himself, the Society, and its guests honour. The Conference, which was well attended, gave occasion to the reading of some excellent papers, which form admirable additions to the literature of the Chrysanthemum. The Directors of the Royal Aquarium increased their special donation to the Jubilee Fund from £75 to £100.

By way of enabling the many societies in affiliation to participate in the Jubilee celebration a bronze Jubilee medal was presented to every Society in affiliation on October 1st last, and it is gratifying to know there was displayed on the part of local exhibitors the keenest rivalry in becoming the possessors of these medals.

The Jubilee Sub-Committee have earned the thanks of the members for their labours in bringing the celebration to such a successful issue.

The Jubilee edition of the Catalogue brings the work of the classification of the Chrysanthemum up to last season, and it is a most useful companion to the Centenary edition. Your Committee have acknowledged the labours of the Catalogue Revision Committee by making them the recipients of the medals of the Society.

Finding some difference of opinion existing in reference to the classification of a number of incurved varieties of recent introduction which do not find a place in the Jubilee Catalogue, your Committee appointed an influential Special Committee of leading growers to deal with the doubtful varieties. This Committee have made a report which has been accepted, and it finds a place with the published annual report, schedule of prizes, &c.

Illustrative of the Society's widespread influence, it may be pointed out that the year 1896 was also a noteworthy one in its foreign relations. Besides the ordinary work of the department, it is gratifying to record that early in the year the first German Chrysanthemum Society (Hamburg) made application to be added to the list of affiliated societies.

The Jubilee festivities were no sooner over than the Society, following the example of 1889, appointed an official deputation, consisting of Messrs. T. Bevan, H. J. Jones, and C. Harman Payne, to visit certain Chrysanthemum shows on the Continent. At Ghent the Society for the first time in its existence figured as an exhibitor with the most satisfactory result. The reception everywhere accorded to this deputation was of the heartiest nature.

One of the results of this continental trip was that the French Government appointed Mr. Harman Payne a Chevalier of the Order of the Mérite Agricole, in recognition of his services in the cause of the Chrysanthemum.

The meetings of the Floral Committee during the past year brought together a large number of novelties, from which a judicious selection was made for certificates of merit. Each year's experience operates to

set the standard of comparative perfection higher, and the granting of certificates of merit is now made only after the fullest consideration.

As evidencing the growth of the Society since January 1st, 1896, thirteen Fellows and 175 ordinary members have been elected, and twenty-seven societies admitted to affiliation.

Your Committee have thought the occasion of the Jubilee celebration a fitting time to elect some individuals to the position of honorary Fellowship, and the following are nominated to that honour as having in various ways rendered conspicuous service to the Chrysanthemum:—Messrs. Henri de Villemorin, Paris; H. Martinet, Paris; O. de Meulenaere, Ghent; B. Wynne, Chairman of Committee; T. Bevan, Chairman of Floral Committee; H. J. Jones; C. Harman Payne, Foreign Corresponding Secretary.

Your Committee owe a deep debt of gratitude to their honoured President, Sir Edwin Saunders, for his continued interest in the Society, and for his generous support given to the Jubilee celebration. They desire most heartily to thank all donors to the Jubilee and special prize-funds, through whose contributions your Committee were largely enabled to make the Jubilee celebration such a splendid success.

FINANCIAL STATEMENT, 1896.

RECEIPTS.							
		£	s.	d.	£	s.	d.
Balance in hand	65	7	8
Members' Annual Subscriptions—							
654 at 5s.	163	10	0
12 at 10s.	6	0	0
30 at 10s. 6d.	15	15	0
87 at 21s.	91	7	0
1 at 30s.	1	10	0
3 at 42s.	6	6	0
1 at 63s.	3	3	0
					287	11	0
Foreign Members' Subscriptions	5	3	4
Donations and Special Prizes	194	7	6
Donations to Jubilee Fund	349	3	6
Proceeds of Smoking Concert, per Mr. A. E. Stubbs	11	15	0
					360	18	6
Royal Aquarium Company—							
October Show	75	0	0
November Show	155	0	0
December Show	50	0	0
					300	0	0
Bill Posting, as per contra	10	14	0
Bill Posting overpaid, returned	1	0	0
Affiliated Societies—							
Fees	67	14	6
Medals and Certificates	109	9	0
					177	3	6
Entrance Fees and Rent of Space	120	7	0
Catalogues and Postage...	16	15	7
Sale of Tickets	51	12	9
Advertisements in Schedule	46	12	0
C. Green & Son, overpaid, returned	2	11	0
Judging Fee, overpaid, returned	1	1	0
					£1641	4	10

Reserve Fund, £104 18s. 2d.

		RESERVE FUND.						£	s.	d.
1896.		£	s.	d.						
Balance in hand ...	...	45	11	8	Transferred to deposit					
Transferred from general	...				account as per deposit					
account	...	55	0	0	receipt	...	...	100	0	0
Sale of Year Books	...	3	9	4	Balance	...	...	4	18	2
Interest on deposit account		0	17	2						
	</									

£100 on deposit with the London and County Bank, Ealing Branch.

Examined and found correct.

GEO. J. INGRAM,
HERBERT J. CUTBUSH. } Auditors.

February 18th, 1897.

Mr. B. Wynne moved the adoption of the report and accounts, and in so doing offered his congratulations on the result of the Jubilee celebration. He thought that such an exceptional record spoke well for the wisdom and judgment of the Committee. The Chairman, in putting the motion, said that this time last year he did not expect to be able to congratulate the Society on such a splendid outcome of their efforts, and the same was carried with acclamation.

Mr. Wynne, not seeking re-election as Chairman, was awarded a vote of thanks for his services in that capacity.

EXPENDITURE.							
		£	s.	d.	£	s.	d.
Prizes—September Show	20	7	6
October	40	15	0
November 1st	464	13	6
November 2nd	155	10	0
December	54	13	6
Medals awarded and Engraving	103	10	6
					839	10	0
Medals and Engraving, Affiliated Societies	52	9	0
Special Jubilee Bronze Medal	42	0	6
Cartage	3	5	0
Judges' Fees	33	12	0
Judges', Floral and Staff Luncheons	30	13	5
Bill Posting, as per contra	11	14	0
Advertisements in Horticultural Press	20	19	0
Hire of Plants	5	7	0
Hire of Rooms	9	9	0
Expenses of Annual Dinner	18	5	6
Printing	67	19	6
Stationery	28	9	3
Stamps and Telegrams	36	19	4
Special Jubilee Postage	30	0	0
Sundry Expenses	11	13	7
Expenses of Jubilee Banquet	92	11	0
Royal Aquarium, Charge for Tickets	33	15	0
Royal Aquarium, Commission on Jubilee Subscriptions	19	13	4
Clerical Assistance	75	0	0
Clerical Assistance, Members' Register and extra Jubilee Work	7	7	0
Allowance for extra Labour, Gas, Firing, &c., Jubilee Shows	25	0	0
Commission, Obtaining Advertisements	11	5	0
Show Expenses	51	3	0
Foreign Corresponding Secretary's Account	1	15	3
Expenses, Catalogue Revision	2	19	11
Purchase of Bottles	1	11	0
Expenses, Floral Committee	4	8	6
Money Returned	1	14	6
Insurance Premium	0	9	0
Donation to Royal Aquarium Employés	2	2	0
Bank Charges	1	13	7
Transferred to Reserve Fund Account	55	0	0
Balance	10	10	8
					£1641	4	10

Compared with Vouchers and found correct,

February 18th, 1897. GEORGE J. INGRAM }
HERBERT J. CUTBUSH } Auditors.

The Chairman then commenced a series of interesting presentations, beginning with Mr. R. Dean as the senior officer. A gold Jubilee medal and an illuminated address with the thanks of the Society for the many duties performed by him were then presented to Mr. Dean, who suitably replied. A similar presentation was then made to Mr. C. Harman Payne as Foreign Corresponding Secretary. Silver-gilt Jubilee medals were then presented to Mr. Wynne, and one was awarded to Mr. T. W. Sanders, who through an accident was unavoidably prevented from attending. Bronze Jubilee medals were also presented to Mr. Ballantine, Mr. Bevan, and Mr. Williams, and the members of the Catalogue Committee also received similar recognition for their labours. A letter from the President, Sir Edwin Saunders, was read, offering his felicitations.

The election of officers was then proceeded with, with the following result:—President, Sir Edwin Saunders; Treasurer, Mr. J. R. Starling; Chairman of Committee, Mr. T. W. Sanders; Vice-Chairman, Mr. R. Waterer; General Secretary, Mr. R. Dean; Foreign Secretary, Mr. C. Harman Payne. One-third of the General Committee retiring by rotation, scrutineers were required to examine the balloting papers, Messrs. Crane, Needs, Berridge, and Taylor being appointed. A large number of nominations having been made, the following were announced by the Chairman as having been duly elected—viz.,

Mr. H. Cannell, Swanley, Kent, 63; Mr. W. Holmes, Dryburgh Road, Putney, 65; Mr. D. Ingamells, Covent Garden Market, 66; Mr. W. H. Lees, Trent Park Gardens, Barnet, 72; Mr. W. Mease, The

Gardens, Downside, Leatherhead, 77; Mr. J. W. Moorman, The Lodge, Victoria Park, N.E., 75; Mr. R. Reeve, Hadley Green, Barnet, 55; Mr. J. Williams, 15, Dynevor Road, Stoke Newington, 76; Mr. J. H. Witty, Nunhead Cemetery, S.E., 80; Mr. J. Lyne, 47; Mr. A. Newell, 35; Mr. Gleeson, 32; Mr. Howe, 29.

The election of new members then followed, and the following societies were admitted in affiliation:—The Swansea Working Men's Club and Institute Chrysanthemum Society and the Putney and Wandsworth Chrysanthemum Society.

A few other items of formal business nature were then disposed of, and the meeting, which was very largely attended and of a most hearty nature, concluded with a vote of thanks to the Chairman, upon the motion of Mr. Wilkinson, the Secretary of the Royal Aquarium Co.



NOTES ON PHALÆNOPSIS.

THE glorious racemes produced during the present and few succeeding months by some of the better known species of Moth Orchids are enough to tempt anyone to take up their culture, and he who fails to admire these must certainly have entirely lost his sense of the beautiful. Nothing in the whole range of Orchids could excel the graceful pose of the racemes, the richness and exquisite contour and delicate texture of the blossoms. It is remarkable, too, if a little thought is given to the matter that such a sumptuous display should be the outcome of such meagre fare, for not one of these Orchids cares for or will be satisfactory with anything in the way of manurial stimulants.

The roothold for these Orchids is an important matter, and whatever is used for them must be of a very lasting description. Wood is without a doubt the most natural holding for them, and the way the roots attach themselves to it and thrive upon it is ample evidence that it is suitable for them. So long as this remains sound nothing could in short be better; but even the most enduring kinds as a rule soon decay in the heat and moisture of the Orchid house. Then it will be found rather difficult to re-establish the plants upon new blocks, or in new baskets, cylinders, or whatever may be used. In the case of the latter the roots will often be found running the entire length of the rods, and therefore not easily detached, and when detached difficult to induce to take hold of a fresh piece.

When baskets are used the roots are usually much entwined about the rods, and here the difficulty is as great as with cylinders. A partial way out of these difficulties will be found in growing most of the stronger or more robust species in pots nearly filled with clean rough potsherds, with a surface layer of sphagnum moss. These may, of course, be suspended from the roof if required, but the chief advantages will be found in the fact that they very seldom need be disturbed at the roots, and when eventually this does become necessary the roots, by their freer ramification among the crocks, will not suffer so much, and the plants are in consequence easier re-established.

I do not mean by advising pots, that the ordinary make and no other should be used, for the light pans so often recommended answer exactly the same purpose, and are in fact superior to the ordinary kind for weak species and small plants. The layer of moss need only be thin, and may be added to as time goes on if necessary. Great care is necessary not to damage the roots in fixing, and the plants must be made quite firm, tying to upright stakes being required if the roots are not plentiful. If baskets or cylinders are used the same care as to fixing is necessary, but the roots in this case are not so liable to injury with ordinary care.

Watering at the root must be judiciously attended to all the year round. The drying of these plants during winter, which I have often warned growers against, is still practised to a certain extent, and is a relic of the barbarous treatment that used to be meted out to all Orchids alike, whether it was a pseudo-bulbous kind or one of the distichous-leaved race without those sustaining organs. Allowance must be made for the state of growth, also the state of the atmosphere and climatic conditions outside; but a starving régime, brought about by entirely withholding water, cannot be too strongly deprecated. Watering over the leaves is not as a rule advisable, occasional success obtained under the circumstances notwithstanding.

Temperature is an important factor. As the year advances the increased light and warmer outside conditions must be met with a slightly higher temperature. The maximum will be reached at midsummer, and continued until the days again begin to shorten,

when it must again recede, not all at once, but very gradually. Healthy plants with abundant leafage stand a fair amount of sunlight and air, especially towards the end of summer, when it has a tendency to consolidate the plants and render them less likely to suffer from slight alterations of temperature, sometimes unavoidable during winter. It may be taken as a guide that the minimum winter temperature must never be less than 60°, while 90° is quite high enough as a summer maximum by day, 70° by night.

It is impossible to go minutely into all the details of culture, but the cardinal points once mastered beginners will find little difficulty in growing the species named below. One thing must not be lost sight of—that is, that Phalænopses one and all are very free blooming plants, and sometimes push flower spikes when the plants are hardly capable through weakness, or owing to not being well established, of bringing them to perfection without risk of injury. In such cases remove some of the flowers, and whatever number is left do not let the plants carry them until they fade, but cut and place in water after about a week or ten days.

P. amabilis may be styled the most popular in the genus, and produces large racemes of white blossoms with a prettily spotted lip. It first flowered in England in 1838, and is a native of Java. *P. grandiflora* is a large flowering plant, but much resembling *amabilis*. It is a Bornean kind, introduced in 1847. *P. Ludemanniana*, *P. Schilleriana*, and *P. Stuartiana* (fig. 35) are all natives of the Philippine Islands. The first-named is slightly more tender than the other two, and bears white flowers prettily marked with brown and purple. *P. Schilleriana* would be worth growing for the sake of the beautiful foliage alone, and *P. Stuartiana* is not far

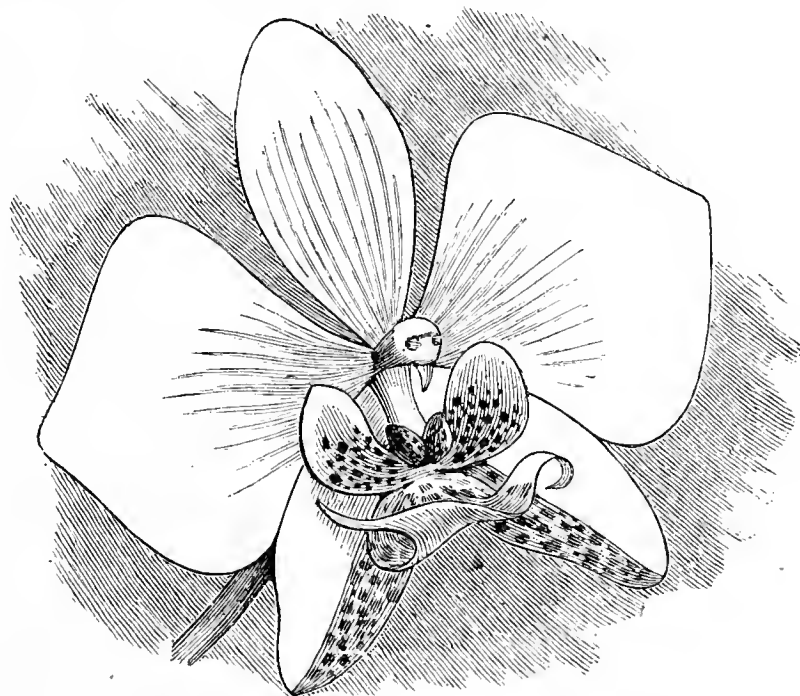


FIG. 35.—PHALÆNOPSIS STUARTIANA.

behind it in this respect. Both produce splendid branching spikes of flowers, the ground colour of these varying from creamy white to the deepest rose.—H. R. R.

SALE OF ORCHIDS AT MARKS TEY.

AT Messrs. Horsman's sale good prices were realised for the plants by Messrs. Protheroe & Morris. Nothing of great rarity was included, but fine plants of popular kinds sold well, especially *Odontoglossum crispum*, owing possibly to a report that it is becoming scarce in its habitat. *Dendrobium Wardianum album* brought 4 guineas and 3 guineas, while a good form of *Lælia purpurata* went for 3½ guineas. Some unflowered seedlings of *Cattleya* were knocked down for 10 guineas, a good price considering that the parentage was not forthcoming.

FRENCH WINE.—The annual report of the Commissioners of Indirect Taxes, a full digest of which has recently been published in the "Moniteur Vinicole," confirms the estimate formed at the close of the vintage as to the quantity of wine made in France last year, the total yield of the 4,321,080 acres under cultivation in 1896 being 1,004,763,420 gallons. This is equivalent to an average yield of 234 gallons per acre, or 99 gallons per acre more than in 1895, and not far short of the almost unprecedented average obtained in 1893. But although there was an increase of the area under vintage cultivation in thirty-four departments, so many Vines were uprooted elsewhere that the total for the whole of France showed a decrease of 46,420 acres; and it is worthy of note that the acreage has been steadily decreasing for the last ten years, having been just 5,000,000 acres in 1886, though the yield of wine has, on the whole, been larger since.



WEATHER IN LONDON.—Brilliant sunshine has been sandwiched between soaking rains during the past seven days in London. On Thursday the weather was more like May than February, as were Sunday and Tuesday, while the intervening days were dull, cold, and wet at intervals. Evidences of spring are seen on every hand. Wednesday opened dull and colder.

— WEATHER IN THE NORTH.—The past week has been, on the whole, pleasant, although there has been but little sunshine, and the westerly winds have been occasionally high and cold. Drizzly rain has been frequent; the afternoon and evening of Saturday were unpleasantly wet. Monday was quite spring-like, with gleams of sunshine; Tuesday morning dull and colder.—B. D., *S. Perthshire*.

— GARDEN PATHS.—Where gravel or other suitable material is scarce I can recommend coke breeze, as it is called, for garden paths as an excellent substitute. It is less subject to harbour weeds, forms a firmer and drier walk than coal ashes, and what is of no less importance, it resists the action of sharp frosts—that is, in not becoming loose on the surface, and when thawing not soft and sticky. Being also of a uniform “sifting,” the coke breeze forms a neater surfacing than either coal ashes or the breeze or cinders obtained from foundry furnaces.—W. G.

— THE HYGIENE OF GRAPES.—Recent testimony as to the hygiene of fruits places Grapes high in the list. For certain diseases (says the “Grape Belt”) they are a specific, and the “Grape cures” of France and other countries have a deservedly high reputation. Grape sugar is more easily digestible than cane sugar. The fruit acids are beneficial in rheumatism, and as a preventive of certain injurious deposits in the system, especially of old people. The Americans, the largest consumers in the world per capita of sugar, ought naturally to be large consumers of fruit. Ripe, fresh fruit, or some form of cured, canned, or preserved fruit should, both by the logic of economy and health, form a regular portion of every meal of every American family.

— ROOTING CARNATION CUTTINGS.—When your correspondent “Bassil” asserts that I am “behind the times” his note, unfortunately for him, does not display much advancement on the road of progress. If he looks back he will find more than 90 per cent. rooted. My last box has yielded 97 per cent. Carnation cuttings do not appear to root satisfactorily in a warm house without the aid of bottom heat. We have had successes and failures. Our bottom heat pipes are 5 feet deep, and therefore practically no use. We might tell “Bassil” we found them there, having nothing to do with putting them in that position. We wrote for the good of those similarly situated to ourselves—and there are many. If we have helped them our object has been gained, whether the writer or method is “behind the times” or not. It is a pity “Bassil” hides so much valuable information. When room is limited, as it is in most gardens, and varieties for propagating as well, we see no need for 3-inch pots for four cuttings when thumbs would do equally as well—a saving of room, which in these days is certainly a progressive step.—W. BARDNEY.

— BIRMINGHAM GARDENERS’ ASSOCIATION.—“Herbaceous Plants” was the title of a dissertation given by Mr. Edward J. Baillie, Chester, to a large gathering of the members of this Society on the 15th inst; Mr. W. B. Latham in the chair. Mr. Baillie dealt with the subject in a very entertaining and graphic manner, without, however, much reference to particulars in the cultivation of the plants, but more in regard to their general position, from a decorative point of view, their classification, and their rapidly growing popularity. The essayist’s references to the folk-lore, poetry, romance, and mythology attached to flowers were most instructive, and comparisons were also made between arrangements of cut flowers. A study of botany was pertinently advocated as part of the gardener’s education, added to which was a knowledge of the etymology of plant nomenclature, though a profound knowledge of Greek and Latin languages was not necessary towards the attainment of a useful and interesting acquisition of those sciences. An interesting discussion, joined in by several of the members, on the various details embodied in Mr. Baillie’s composition of matter, concluded the proceedings.

— TWO EARLY WASPS.—I noticed the paragraph on page 136, and may say I have killed two large wasps indoors, one on December 18th and the other on February 7th last.—M. B., *Co. Meath*.

— A PROLIFIC HYACINTH.—Mr. Bardney writes:—“Since I wrote you about a prolific Hyacinth the ‘missus’ has been growing, I have discovered that it has produced another spike, making seven instead of six, as previously stated.”

— POLYANTHUS NARCISSUS MONT CENIS.—A correspondent says:—“Polyanthus Narcissus Mont Cenis is a good early variety, in fact one of the best, and should be grown by all where this class of flowering bulbs are appreciated. It is as early as States General, and gives a greater profusion of flowers than that variety.”

— SNOWDROPS.—A typographical error in the Journal of February 18th (page 133) may perhaps be misleading to some. In “Hardy Flower Notes” I am made to say, “The Common Snowdrop, looks small and slender beside Elwes’, one of the best forms of Imperati’s great Italian one.” This should read, “Elwes’ one, or the best forms, &c.” I observed it on receiving the Journal, and was about to write when one of my most valued correspondents sent me a letter to call my notice to the error.—S. ARNOTT.

— WINDOW PLANTS.—At this season house plants in bloom are grateful for an occasional feeding with liquid fertiliser, which gives the leaves a deeper green, and increases the number and size of the flowers. Any perfect commercial plant food can be used in solution, but cow manure is quite as satisfactory, especially if a little ashes can be mixed with it for extra potash, and the ingredients steeped in a barrel of water for several days. This liquid should then be diluted until it has the colour of weak tea, for if applied too strong or too freely it is sure to injure the plants. At first, says a writer in an American contemporary, the solution should not be given oftener than once a fortnight, but it can be gradually increased in frequency until it is used as often as once a week or once in five days.

— HORTICULTURE IN KANSAS.—An American contemporary says this is decidedly slipping behind in its commercial aspects, according to the figures published in the tenth biennial report of the State Board of Agriculture (1895-96), a copy of which has just been received. In 1895 the cash values of garden and of horticultural products are respectively given as 939,000 dols. and 930,000 dols., whereas in 1896 the figures show only 760,700 dols. and 642,300 dols. respectively. This decrease in value may perhaps be accounted for to some slight extent by decreasing value of the soil products, but the report shows that the areas under cultivation are largely diminished as regards all crops excepting Strawberries, which show an increase of one-twelfth. In importance as regards number of trees, Apples rank first, with over seven millions, and Peaches are second, with about one-half that number. Pears are but little grown.

— ROYAL METEOROLOGICAL SOCIETY.—At a meeting of this Society on Wednesday evening the 17th instant, Mr. Edward Mawley, F.R.H.S., President, read a report upon the phenological observations during the past year. He showed that throughout the flowering season wild plants came into bloom much in advance of their usual time, and were, as a rule, earlier than in any recent year since 1893. The wealth of blossom on nearly all kinds of trees and shrubs was a noteworthy feature of the spring and early summer, while the abundance of wild fruits in the autumn was even more exceptional. From an agricultural and horticultural point of view the one great drawback of the year, which must have otherwise proved one of the most bountiful on record, was a drought that lasted almost without break—at all events as far as vegetation is concerned—from March to September. The Wheat crop proved the largest and best for many years, while there was a good yield of Barley and Potatoes. The small fruits were also good. With these exceptions all the farm and garden crops were more or less indifferent, the crop of hay being especially scanty. The Hon. Rollo Russell gave the results of some observations on haze and transparency which he had made at Haslemere, in Surrey. From these it appears that the clearest hours at a good distance from towns are from about noon at 3 P.M. The clearest winds are those from S. to N.W. inclusive, and especially W.S.W., W., and W.N.W.; the haziest are those between N. and E. On bright mornings with a gentle breeze or calm, from autumn to spring, the haze or fog which has lain on the low ground frequently covers the hills in the course of its ascent a few hours after sunrise. At any distance within 100 miles of London, or of the Black Country, observations requiring clear views are likely to be interfered with when the wind blows from their direction, and should therefore be taken early.

— **STOCK FOR TREE PÆONIES.**—Mr. Bardney would like to know if any correspondent can inform him on what stock Tree Pæonies are worked, and at what period of the year? They are certainly worthy of more extended cultivation, but they are of slow growth, and somewhat costly for a start.

— **LEMONS FROM CUTTINGS.**—Mr. J. Vearey writes from The Gardens, Gogerddon Hall, near Aberystwith:—"It may be interesting to some of the readers of the *Journal of Horticulture* to know that Lemons can be grown successfully from cuttings. We have some large trees growing on the back wall of a lateinery that I raised from cuttings about twenty years ago, which bear large crops of very fine fruit annually—in fact, they are setting and ripening their fruit all the year round, and we are never without ripe fruit on the trees. Is it generally known that the Lemon will bear so freely from cuttings?"

— **ILEX CRENATA.**—When making a choice of dwarf evergreen shrubs this Japanese Holly should not be overlooked. It forms a compact growing bush usually from 3 to 4 feet in height by the same in width, though it often attains to larger dimensions. The leaves are usually ovate in shape with crenate margins; in the variety known as *I. crenata* major, however, the leaves are almost round. The leaves of the type are green, but there is a variety known as *I. c. variegata* which has its leaves prettily blotched with yellow. The type, together with its several varieties, are easily grown and readily propagated. Cuttings should be taken in the autumn and put in sandy soil in a close frame, when they will root during winter. A very good way to grow this shrub is to plant it rather thinly in a mass in the shrubbery or bed on the lawn, and fill the open spaces up with Lilies.—W. D.

— **EVAPORATION FROM TREES.**—Dr. Rothrock calls attention in "Forest Leaves" to the observation of Dr. Evermayer for the Bavarian Government, who declares that the evaporation of moisture from a forest area, including transpiration from the leaves, exceeds by 50 per cent. the evaporation from a water surface in the open, and if, therefore, we cut off great areas of forest it is not improbable that the surrounding atmosphere is much less humid, and for this reason the ground will dry much more rapidly. This will account to a certain extent for the killing quality of the droughts in some recent years. A diminished rainfall alone will hardly account for their severity, but if we couple with this the fact that evaporation from the ground is more rapid, we have some additional reasons for the extreme dryness which has prevailed.

— **INDIAN FOOD GRAINS.**—In the course of a lecture on "Some Food Grains of India" Professor A. H. Church observed that the Indian famine was due to a lack of self-help on the part of the natives rather than any lack of food. India is a great food-producing country, and as such had helped to lower the prices of food in the United Kingdom. The lecturer said that a large number of different vegetable substances might be used as articles of food. He had studied no fewer than seventy varieties of air-dried grains and seeds, and there were no doubt many more that might have been used. Most Indian Grasses were much charged with adventitious mineral matter. By due commixture of food stuffs belonging to different classes, such as cereals and pulses, a sufficiently near approach to a nutrient ratio could be secured. Another condition required was a suitable proportion of oil or fat.

— **THE COMMONS PRESERVATION SOCIETY.**—This Society has prepared a scheme for the regulation of Ham Common and lammas lands, and this is being considered by the Board of Agriculture. The joint Committee appointed by the Open Spaces Societies to endeavour to secure the dedication of an open space, playground, or place of historic interest or natural beauty, if possible, in each parish in the United Kingdom as a permanent memorial of the Queen's reign has circulated a memorandum on the subject to all district and parish councils, and other local authorities in the country. The provisions of the Hastings Harbour District Railway Bill, now before Parliament, are being closely considered; for should the proposed undertaking be carried into effect, not only will a part of the foreshore be enclosed and Ecclesbourne Glen spoiled by an embankment, but East Hill, an open space which cost about £25,000 to acquire, will be disfigured. In addition to this the scheme would destroy the beauty of the prettiest part of Alexandra Park by the construction of a viaduct. The Society will secure the opposition of the Bill in Parliament. The practicability of preparing legislation for the better protection of commons, heaths, and woods from malicious and wilful injury by incendiaries is under consideration, and it is felt that these evils would be greatly remedied if magistrates were enabled at petty sessions to deal with these offences.

— **THE ROSELLE.**—The Roselle, *Hibiscus Sabdariffa*, is a native of tropical Asia, resembling the Okra in growth, possessing great resistance to drought and yielding an acceptable food product. It has been tried in agricultural stations of southern California, where it is said to be ornamental, with dark red stems and pods showing through rather scanty green foliage. The juice from the fleshy calyces makes a cooling acidulous drink, and is useful for jelly. The mucilaginous properties of the juice render the setting of the jelly certain, and its dark cherry colour and sprightly acid make it very desirable. As it will grow in hot, arid situations, Mr. Wickson, of the Experiment Station at Berkeley, is distributing seed to those parts of the State where it will thrive.—("Garden and Forest.")

— **CHAMPAGNE FROM DRIED PEARS.**—A fact which may have a somewhat important effect upon the future of the Pear market, says "The Grocery World," has just come to light. It is that a rapidly growing demand has been established in Europe for dried California Pears, which are used for the manufacture of champagne. This fruit, when used for wine, is said to yield a much greater revenue than when sold simply as dried fruit. Not only is there a demand in Europe for California dried Pears to make champagne from, but their use in their natural shape is also greatly increasing. The fruit is being sent direct from California, which reduces the freight charges, there being no across-country tolls to meet.

— **PINE APPLES AND DIPHTHERIA.**—Regarding a severe case of diphtheria, a Southern writer recently said that a ripe Pine Apple was procured and the juice expressed, and given to the patient in teaspoonful doses slowly. The authority for the statement adds: It seemed to clear the throat, swallowing was easier, and in a few hours the child was sleeping. Recovery followed. Pine Apple was subsequently used in a number of other cases with every success, and the people of the neighbourhood think it better than any medicine that comes from the drug store. Diphtheria is too critical an illness to warrant experimentation. A physician should be summoned always, but if the doctor endorse such a treatment then afflicted childhood should be indeed happy. Those of adult age will regret that the discovery was not made earlier in the world's history.—("California Fruit Grower.")

— **WOLVERHAMPTON HORTICULTURAL CLUB.**—The monthly meeting of this Club was held at the Midland Café on the 2nd inst., Mr. J. F. Simpson in the chair, when a most instructive and interesting paper on Orchids was read by Mr. G. Burrows, head gardener at Berwick House, Shrewsbury. The essayist first gave an outline of the different countries in which the most important genera are found, also stating the altitude and conditions under which they grow in their native homes. He then entered more fully into the details of their cultivation in houses, indicating the style of houses most suited to the different classes of Orchids. By the able way in which he handled the subject the lecturer proved himself to be an expert in the knowledge of this beautiful class of plants. Discussion followed, in which Mr. G. A. Bishop, Mr. Bradley (Vice-Chairman), and others took part, and a hearty vote of thanks to the lecturer closed a very successful meeting.

ENDIVE.

WE have long since discontinued the culture of any other variety than the Improved Broad-leaved Batavian. When this kind is well grown and thoroughly developed we find it much better and more appreciated than small later sown plants. Our practice is to fill all the spare lights we can and then pack good batches close to the walls on the south side of Peach houses and vineries. Close to the walls of such houses a very severe frost is necessary before covering is really needed. As a rule the plants are safe against 14° or 15° of frost, and a few Spruce branches or Yew prove ample to protect them through ordinary winters.

We have for many years ceased attempting to blanch Endive outside by the many methods recommended. If we have no room in the Mushroom house we place the plants closely together in a deep box with soil about their roots, and then cover the box with slates. Early in the autumn this is our method, and we are inclined to think when the boxes are placed in brisk heat and the centres forced up quickly and well blanched it is not so bitter as when allowed to blanch under cooler and slower conditions.

During late autumn and winter the small varieties of Cabbage Lettuce are preferable to Cos. The latter are very bitter after the days and nights begin to be cold. In fact, when they can be cut outside late in the season they are very little superior to Endive, for they are bitter and somewhat tough. Although we keep what Lettuce we can, and store plenty of Endive as well as force Chicory, we are of opinion that good supplies of Mustard and Cress are more appreciated. In addition we also grow a good supply of Watercress in cold frames. We go to very little trouble, and the yield is both abundant and good. How we do this may be described before long.—PRACTICE.

VEGETABLE TRIALS IN SURREY.

WHILST it is possible for those who reside in the respective localities to take practical interest in any of the trials of garden products which may be conducted in their neighbourhoods in the county, yet the publication yearly of reports of those trials in small pamphlet form by the Technical Education Committee enables the results to be widely read, and thus be productive of great good. Very much interest is by such agency aroused in the county in reference to kinds and varieties of vegetables not well known, and as in all cases the name of the firm from whom originally obtained is given, the public are enabled to obtain samples if they so desire.

A few plots hitherto used in the county, especially those remote from headquarters, have been given up, as their situation rendered ordinary supervision difficult. Those retained for cropping this year are at Richmond, a light porous soil, and early; Egham, a deep sand; Bookham, loam on chalk; and Surbiton, a new plot, which is of very sandy loam on ragstone, varying in depth. All these plots are locally placed at the disposal of the Technical Education Committee free of cost. Owing to the increase of continuation school or boys' gardens in the county, for these run into several hundreds, it is found needful to, so far as is possible, supply them with good seed Potatoes and Peas of superior varieties to those usually obtainable through the local seedsmen.

For this purpose large quantities of seed Peas, in all cases fine and wonderfully clean samples, were saved from last year's trials, and most of these will be sent out in small quantities to the school gardens. Other portions of the best varieties, all of moderate height, will be grown expressly to produce seed at Bookham, where also on an equal portion of the large plot there will be grown some twelve or so varieties of the best early and second early Potatoes to give tubers for the same object. At Egham, one half the plot will be devoted to eight varieties of Potatoes, three rows of each being planted, to once more test the relative productiveness of small, medium, and large tuber sets, an equal number being planted in each row. The other half of this sandy plot will be utilised for a trial of Carrots and Beet, as these sorts invariably do well on the ground.

At Richmond one half the plot will be cropped with various early varieties of Potatoes, also to produce tubers for the boys' gardens, and the other half will be sown with small quantities of some twenty varieties of Boston grown Peas, kindly presented for trial by Messrs. W. W. Johnson & Sons. These are all of dwarf sturdy nature, and will be treated as in field culture. The Surbiton plot, which is situated in a very prominent position just within the entrance to the very fine group of allotments which the District Council has there provided, will be devoted entirely to variety trials.

The ground has been prepared for cropping by a heavy dressing of good manure, which has been well buried down in the process of trenching, work that has been well done. The ground had been previously poorly done, and only shallow dug. It is hoped as one result of the good dressing, and especially of deep working, that an object lesson of great value to the various allotment holders may later be furnished. As the plot borders the principal road through the allotments a narrow border will be sown with various flower seeds, amongst which will be both home-grown and German-grown Asters for trial.

The vegetable crops will comprise twenty-eight varieties of Potatoes, one row of each, planted at 30 inches apart; twenty rows of Peas, including all the finest of the varieties that were grown last year, and a few new ones; and about twelve rows of Onions, in six varieties, such as Ailsa Craig, Crimson Globe, Cranston's Excelsior, Inwood Favourite, Maincrop, and the Wroxton, all superior ones, the seed having been grown specially last year from some remarkably fine selected bulbs. This arrangement of the respective crops will admit of an entire change of ground next year. The Surbiton ground, being within easy reach, can have constant attention. Every variety will be well and legibly labelled, also with name of firm from whom originally obtained. The County Council does not in any way interfere between allotment holders and the seed trade, but is desirous of giving wider information respecting the best varieties, and very largely is in that respect successful.—A. DEAN.

RIVAL QUEENS.

IT must not be inferred from the above heading that an attempt is to be made to place the Queen of Flowers and the Queen of Autumn in the position of rivals—that they can never be. The one is the flower of summer, while the other enriches our greenhouses in autumn. There can be no rivalry between these two—each sways the world of horticulture in its own season and in its own sphere. But if we may have Queens in the floral world of summer and autumn, we are equally within our rights in instituting Queens of winter and spring, and in so doing we have two flowers to claim honour—the Chinese Primula and the Cyclamen. Which shall have the supremacy? Neither. Each in its style is almost perfect, and votes for the one would be about equal in number to those for the other. So must they remain as hitherto, rival Queens of surpassing beauty and exceptional utility.

With the advent of Christmas the reign of these flowers commences, and is continued well into the months of spring. In every garden, be it large or small, in every florist's shop that is worthy the name, and in every nursery in the country may these plants be seen. Not everywhere in a similar condition, however. Here one may see Cyclamens in perfection, and there Primulas, while in another place

neither will be worthy of more than a passing glance, and even this may show nothing better than poor, unsubstantial flowers, and weak attenuated foliage. Go next to a home of both—he that home a nursery or a private garden—and what will be seen? Flowers clear in colour, symmetrical in contour, and perfect in substance; leaves rich in their various tones of green, developed fully as they should be, and of such texture as denotes inherent strength of constitution, natural to the stock and emphasised by the cultivation. Where may Cyclamens and Primulas be seen in this condition? may be asked. A reply to this can be given in two simple words—Sutton's, Reading, where the rivalry of the Queens is of the strongest, and where the most jealous partisan of either cannot say which must reign supreme, so peerlessly beautiful are both. The whites, the pinks, the roses, the crimson flakes, the bright reds, the crimsons, the blues, and the heliotropes of the Primulas; the whites, the roses, the purples, and the blackish crimsons of the Cyclamens are all to be seen at the Portland Road nurseries of the great Reading seed firm in perfection.

Many times before have tributes been paid to this firm for its services to floriculture in improving these two flowers, but once more it must in justice be given. This year, like its many predecessors, has brought strides, not big ones perhaps, but still perceptible, and taken on the firmest ground. Each season one may see this advancement, and each season sees more experiments being made, some of which are chronicled as successes, while others sink into oblivion as failures. No matter how many of the latter there may be, the work is still persisted in by Messrs. Sutton & Sons with the aid of their capable nursery foreman Mr. J. Martin, who is a true florist and hybridist. Thanks are due to all concerned in the work, and they are herewith heartily accorded.

On the occasion of a recent visit to Reading the writer, as a gardener, felt irresistibly drawn towards the Sutton Nurseries. Visions of loveliness seen there in past years floated through his mind, and the conclusion was arrived at that an hour or two there spent could not be other than profitable. So excellent were the many plants seen, that it will perhaps interest those readers who are so far unfortunate as to be unable to make a personal inspection if a brief reference is made in the pages of the *Journal of Horticulture* to those which appeared to stand quite at the top of the tree of beauty, and a commencement may be made with the

PRIMULAS.

Of these there are plain-leaved, Fern-leaved, and Moss-curved in the ordinary section, and the two former in the rightly named giant section. These giants make a strain that is really superb. The plants are floriferous without being coarse and ungainly, while they produce immense flowers from plants in comparatively small pots. As a matter of fact all are grown in 48's, a size that is handy for all purposes. Many of the individual flowers have the extraordinary diameter of 2½ inches, the trusses at the same time being of considerable size. Undoubtedly culture must have some effect on their uniform excellence, but that alone cannot do everything, for unless the quality is there no amount of cultivation can bring it forth. There are white, plain and Fern-leaved, pink and crimson giants, each of which is of equal merit, though many would probably put the white in the van. The blooms are symmetrical, of perfect form, and the leafage is abundant without detracting from the beauty of the flowers.

Turning now to the older section the same plethora of beauty and quality is apparent. Many readers can remember the day when Ruby King was shown and honoured at South Kensington, and they will recollect how much admiration was elicited by the variety by reason of the beauty of it, and the distinct advance it showed upon existing forms. Writing of the Reading Primulas in the *Journal of Horticulture* for January 9th, 1879, that prince amongst florists, "D., Deal," says regarding Ruby King, "I do not hesitate to say, taking all its points, is the most beautiful Primula that has yet been raised." Compare Ruby King of then with Brilliant Ruby of to-day, and the march onwards may be measured at a glance. Good as was the first named variety, Brilliant Ruby is infinitely superior. With such a name there is no need for description, and this is a condition common to all the Sutton varieties, for the firm has striven to give names which by their simplicity convey an exact idea of the merits and the colour of the variety. That now well known white variety, Sutton's Pearl, still occupies a foremost position by reason of its many merits. It is, in short, a Pearl of great beauty. Of Royal White one could not speak too highly, for of the ordinary Primulas it is the leader, and is usually recognised as such by those who are fully qualified to judge.

There are besides these the Reading varieties as represented by Reading Scarlet, Blue and Pink, which are of splendid quality, such as would have taken the whole of the floricultural world by storm ten or fifteen years ago. Gypsy Queen and Snowdrift remain as prime favourites yet, and are likely to do so for many years to come if the present standard of excellence is maintained by their raisers, as one would naturally expect it to be. The Fern-leaved Rosy Queen, with its handsome foliage and delicately coloured flowers, is peculiarly lovely, as is the chaste variety named Purity. Not many years ago the Blue Primula was usually held up to derision by reason of the washy colour of its flowers, but now criticism is much milder, for the blue is undoubtedly there, and everyone not colour blind must readily be able to see it.

Let us now look for a moment at a Primula that is entirely distinct from all those that have been mentioned in the foregoing paragraph, and which is none the less of the first merit. It is the Star Primula. In this we find a branching habit, an elegant style of producing its

flowers, and an extreme floriferousness that is not found among the Chinese single varieties. True, the individual flowers are smaller, but this is recompensed for by their numbers. Not that the Chinese must be omitted to make room for these; on the contrary, both should be grown, for each is useful and beautiful in its own particular style. The plants attain to a height of from 18 inches to 27 inches, and the fact that the flowers remain long in beauty when cut and placed in water will be another recommendation in the eyes of most people. The flowers vary in colour from pure white to pale purple, but more shades will doubtless be added before many years have gone by.

Double Primulas are perhaps even more beautiful than the singles; the colours are so clear, so chaste, and so delicate, the flowers so

so handsomely marbled as to render them worthy of being grown for this alone. To these recommendations must be added the one of fragrance, for this distinctly increasing in many of the varieties. We give in fig. 36 a photographic reproduction of one of Messrs. Sutton & Sons' plants that was in a 48-pot. This shows the blooms reduced, but unfortunately it was impossible to convey a proper idea of the beauty of the foliage on account of the photo being too black. Neither does the picture show the extraordinary number of buds with which the corm was bristling, though it depicts the purity of the colour and the great substance of the large-sized flowers.

Between the persicum and the grandiflorum sections it is difficult to choose. In the former one secures numbers of flowers and particularly

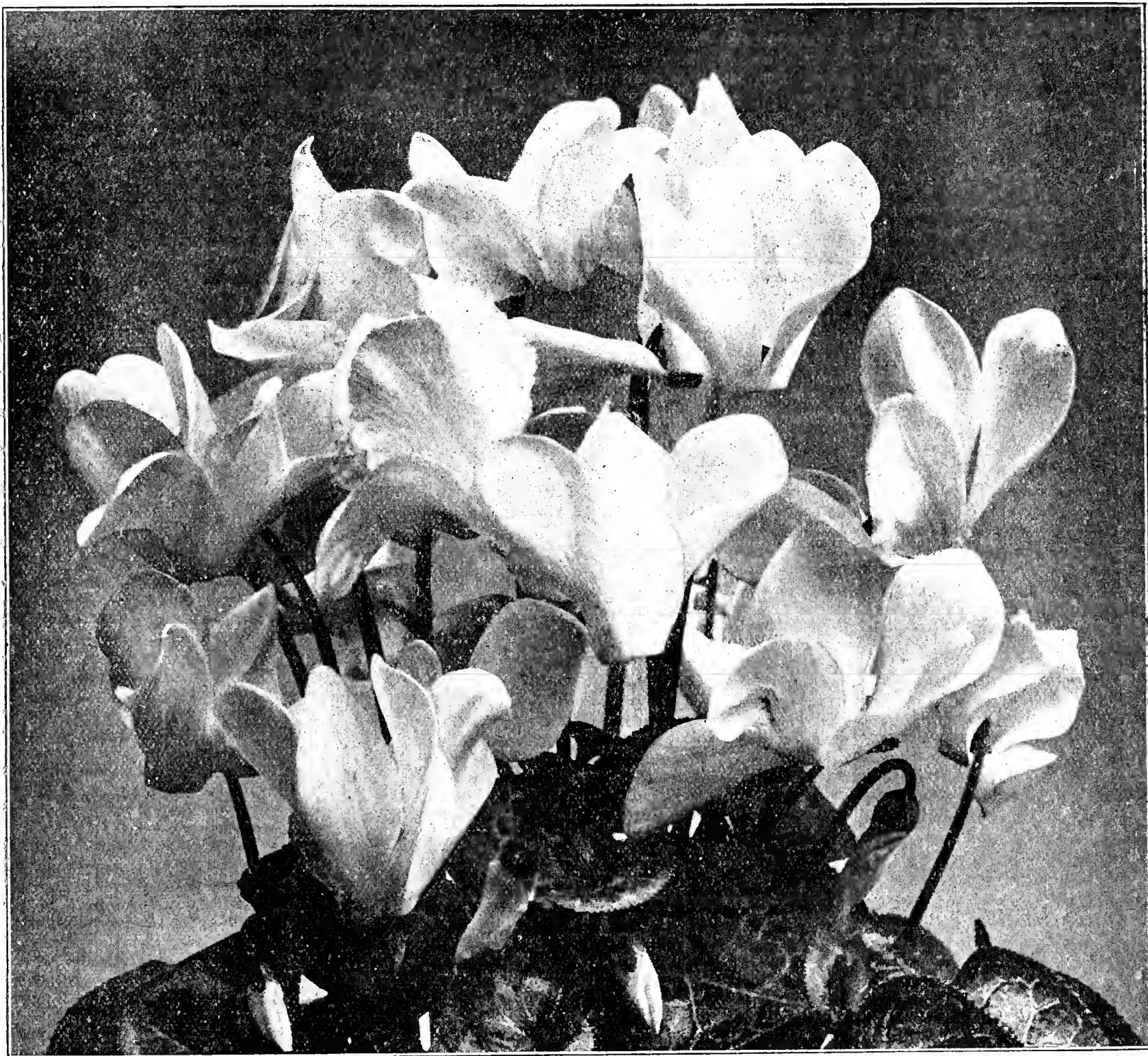


FIG. 36.—A SUTTON CYCLAMEN.

shapely, so useful, and so freely produced, and the plants of such useful size and form. For the adornment of rooms double Primulas in 48-pots are admirably adapted, and that this is recognised is proved by their growing use for this purpose. The colours represented are scarlet, Carnation-flaked (an appropriate name), white, pink, imperial purple, crimson, and blue, every one of which is of the best quality, and seen as they are at Reading in bold masses of distinct colour, produce a telling and at the same time very striking effect. It is but a cursory reference that we have been able to make to this unique collection, but it must suffice now. If any wish to see the plants it behoves them to go as soon as possible, for the zenith of their beauty is already getting past.

CYCLAMENS.

Truly are these flowers rivals of the Primulas. In addition to flowers of exceptional beauty the plants when well grown produce foliage

handsome leaves, while in the latter the blooms, though considerably larger, are not so abundant, and the leaves not, as a rule, so handsomely marked. The colours of the giants comprise white, cherry red, rose, pink, crimson and white, purple, and crimson, each pure and good. Of the persicums the best are certainly Salmon Queen and Vulcan, both of which are superb, the other colours being little, if anything, inferior. That their culture is thoroughly understood at Reading is emphatically demonstrated in the wonderful robustness of each of the plants, a condition of affairs that is by no means common in many parts of the country.

Besides these there are other plants at Reading that are well worthy of attention, such for example as the magnificent Cinerarias; but now all must be passed by, reserving them for a future visit to the town, which was erstwhile celebrated for its biscuits, but is now renowned for its Primulas and Cyclamens.—METROPOLITAN.

HALF-HARDY ANNUALS.

I WANT to put in a plea for these (although the past two or three seasons have been rather rough on them), because I think in the present system of gardening they are invaluable. When bedding out was the rage there was no place for them. "Geraniums," Calceolarias, Lobelias, and Ageratums occupied every available space, and it was only in the kitchen garden that a place could be found for even such things as Sweet Peas and Mignonette; but now since the public have come to a better mind, and our borders are filled with herbaceous plants and bulbs, there is not only room for them, but they are absolutely necessary, and things which were formerly only tolerated are now treated with some degree of respect, and due honour given to them. I say they are necessary for this reason, that when the early spring flowering bulbs which have been interspersed through the borders are passed there is much vacant space round the herbaceous plants which are coming on, and we want something to occupy these spaces.

Of late years the dwarf Gladioli-flowering Cannas have come very much into evidence and are to be found in most gardens, their foliage and flowers being equally effective. Still, one must only use them in moderation, and leave space for the half-hardy annuals for which I plead. It may seem absurd to mention amongst these such old and common things as Mignonette and Sweet Pea, but I have been to garden after garden and neither of these sweetly perfumed flowers was to be seen. Indeed, one of the strongest reasons for the exclusion of the bedding-out system was that there was no perfume whatever in the garden, for none of the flowers that I have mentioned had any perceptible odour, while the carpet garden with its pickled Cabbages, Alternantheras, and Houseleeks had not a vestige of sweet scent, and I have found when neighbours came in to see me a bunch of Mignonette was a great treat to them; and beside this there is another great advantage in half-hardy annuals—they are delightful for cutting. The lightness and elegance of form of many of them, and their brilliant and chaste colouring, is the delight of all those who arrange flowers and have to do so at a moderate expense.

Considerable improvement may be made, I think, in the manner of growing these. They are apt to be overcrowded, and if more attention were paid to thinning out much more satisfactory results would be attained; but it is very hard to persuade people that three or four plants well grown would be more effective than a couple of dozen crowded together. There is another point on which I feel more strongly every year—the superiority of single flowers over double ones. There was a time when I was very much attracted by the splendid Asters which Traffaut, Betteridge, and other growers have managed to raise; but even these are not very available as cut flowers for decoration, and therefore in my limited space I rely less on them every year. There is one double flower beside the Rose which I could not very well dispense with—the double Zinnia. Not only has it such very brilliant colours, but it has the advantage of supporting itself without any need of stakes; but the same objection applies to it as to the other double flowers—it is too stiff for tasteful decoration.

SWEET PEAS.—As I have already said, this in our bedding-out days used to be banished from our gardens, but now we see them on every side. Thanks to Mr. Eckford, we have the most varied hues now amongst them, from pure white to deepest crimson, including also sky blue, dark blue, rich purple, blue and purple striped, pink, carmine and white, brilliant scarlet, delicate rose, primrose yellow, and scarlet striped; nor has this great variety of colour been gained, as in the case of some flowers, at the expense of their delicious perfume, which has so well earned for them the name of Sweet. So that one is not surprised to learn that in America, where the love of garden flowers is so much associated with those that are suitable for house decoration, hundreds of acres of them are cultivated. They may either be sown in pots or in the open ground. They should be carefully thinned out so as to leave plenty of room for growing, and if the seed pods are picked off as soon as formed the blossoming time will be greatly prolonged. I do not think very much of that curious little dwarf which has come to us from America, Cupid, as it does not seem to flower very freely, and many persons express their disappointment at it. It is curious, and that is all one can say for it.

ZINNIA HAAGEANA.—One can hardly praise too early the bright orange coloured Zinnia. It grows about a foot high, and comes in admirably to fill up the spaces made when some of our dwarf growing spring bulbs have died down, and its brightness makes it most desirable for cutting.

COSMEA BIPINNATA.—I had heard much of this annual, and tried it for the first time last year, and I am afraid the season was an unfavourable one for it, as I was disappointed with it. The plants grew well and the foliage is effective; the flowers, too, are handsome and varied in colour. They are borne on stout footstalks, and remind one somewhat of single Dahlias; their colour is white and heliotrope, though I find it described in some catalogues as rose and white. It is somewhat late flowering, and the heavy drenching rains of September caused the plants to grow so much into leaf that the flowers were somewhat sparingly produced. I am told that this is not its character, and that in a more genial season it flowers very freely, and I shall hope to try it again; the foliage is especially handsome. It is a native of Mexico, and sometimes called *Cosmos bipinnatus*.

NICOTIANA AFFINIS.—This is a delightfully sweet-scented flower, vigorous in habit and very floriferous; the flowers are white, and open towards evening and continue in flower all night, and those who like when they go out into their gardens in the evening to be surrounded by

sweet perfumes ought not to neglect this plant. It is one also that is admirably adapted for pot culture.

SALPIGLOSSIS.—It is hardly possible to speak too highly of the beauty of this half-hardy annual with its gorgeous and unique colouring. Many of the flowers have quite the appearance of enamel, and hardly any of them are self-coloured, but are veined. Thus orange, salmon, cerise, violet, and other striking tints are seen in unusual combinations, and the effect is very grand. They cannot be said to be very sweet scented.

LEPTOSYNE MARITIMA.—This is sometimes known as *Coreopsis maritima*, and is a showy Californian annual, half-hardy in this country; the flowers are of a bright yellow colour, somewhat like a yellow Marguerite, and as they are borne on long stout footstalks they are valuable for cutting; as a plant it is also showy in the garden.

NEMESIA STRUMOSA SUTTONI.—This is a very beautiful half-hardy annual, very variable in colour, including shades of yellow, bright orange, crimson, rose, and white; it is very free flowering, and continues in bloom for a very long time. Like most flowers of this class, it succeeds best when sown early in the year, then pricked out into boxes, from thence into the border. It is frequently used for beds, and from its long continuous flowering is valuable for such purposes.

MARGUERITE CARNATIONS.—A very charming and sweet-scented annual. It is not only valuable for the borders, but also for pot culture, flowering freely during the autumn and winter months. The flowers have the old clove perfume, and a pleasant odour is diffused through the house where they are grown. There are both single and double of various colours.

FAIRY ROSE is a remarkable race of very small dwarf-growing Roses; they are sometimes called perennial, but may be treated as annuals. They flower within two months after the seed is sown, and are equally useful for the open border or for pot culture. They may be used for the edging of beds of dwarf Roses; each flower continues a long time in bloom, and is sweet scented. They may also be used for filling up any spaces on the rockery where early spring-flowering bulbs have been grown.

LAVIA ELEGANS.—A Californian annual, bright yellow edged with white. There is also a pure white variety of it called *alba* which is very effective. About 1 foot in height, very useful for cutting, and remains in bloom a long time.

PORTULACAS.—This is an old and well-known annual, and not nearly so much grown as it ought to be. It is one of those plants which a poor soil suits; indeed I have seen when grown at the edge of a border scatter its seed on the gravel walks, which the following year is made gay with its striking flowers, which vary from white to rose and magenta. It is essentially a sun lover, and will not open in dull and cloudy weather, but everyone who sees it in proper condition is at once taken with its brilliancy. It only grows to about 6 or 9 inches in height.—D., Deal.

ROYAL HORTICULTURAL SOCIETY'S COMMITTEES' AWARDS.

WHEN first I looked over the Royal Horticultural Society's report for the past year, and specially as an interested member of one of the Committees, which in one important paragraph are, to some extent, obviously reprimanded for their somewhat lax liberality in the granting of certificates, medals, and other awards, I did not notice the very important part the Council itself had played in the granting of those awards. There were held during the past year nineteen meetings at the Drill Hall, and six at Chiswick—a total of twenty-five; and be it primarily understood that at all these gatherings everything sent for show or for growth is so sent especially to secure an award of some sort if possible. Added to these there were the two huge national exhibitions of flowers at the Temple, and of fruit at the Crystal Palace, so that altogether there were twenty-seven occasions for the making of awards, and be it again remembered not by one Committee, for so wide is the ground covered by the Royal Horticultural Society, that no less than five separate Committees, comprising some 150 persons, have power to make awards. The total of awards of every description made by these bodies, or by sets of judges selected from them, was 873, made at twenty-seven shows or meetings.

Now the Council of the R.H.S. as a Council, and this is the reprimanding body, went to the great provincial shows of York and Chester last year, and they made awards of thirteen descriptions at these two shows, the total being seventy-five. With respect to these awards, the Committees as such had absolutely nothing to do. But look at the singular disproportion! Were the Council's liberality on these two occasions to be followed by the Committees generally we should see the year's awards total up a long way higher than was the case last year. That being so, would it not be well for the Council, before it attempts to advise the Committees again, to show these bodies a good example in forbearance by granting awards at these provincial shows with less liberal hand? It is not precept, but example that is so useful in such cases.

After all is there the slightest probability that any checks will be put on the present, perhaps too free, granting of awards? I fear not. I have long contended that in many directions it is now time that higher standards of excellence were set up, and I think generally, though not in every case, those standards are more exacting so far as certificates are concerned. That it is so in the case of the Fruit Committee is evident, because that body granted six only last year. The award of merit is the honour

most lavishly bestowed, for no less than 352 were given all round. Yet in this case I am disposed to think that the recipients set a far higher store upon it as an honour than it deserves. At the best it indicates very good average merit and no more, and that is not much to boast of. Often no doubt the award is good-naturedly bestowed, but so long as awards of merit are sanctioned so long will they be freely given. Very much no doubt are they given on the principle that they please someone and nobody is hurt.

It is said that the greatest criminals in the matter of awards are the Floral and Orchid Committees. I think it is not too much to say of the latter body that it is largely composed of pure enthusiasts, who are in their awards guided by no such severe considerations as animate members of other committees, and every trifling variation in form or colour or marking in any Orchid excites the greatest admiration; hence the abundance of awards. Possibly the purposed subjecting all honoured flowers to the ordeal of the artist's brush—and it is hoped the work of illustrating these flowers will be performed with absolute accuracy—for presenting to the Committee fac-similes of previous exhibits, and tend to somewhat cool members' fervour in relation to minute divergences henceforth.

With respect to the Floral Committee, if that body be specially chargeable with *laches* no one seems to trouble to defend it. Perhaps the members think its reputation is safe in the hands of its Chairman, who was not a member of the Council when the paragraph in the report I comment upon was indited. In any case, it is fair to say that the number of exhibits placed before that body, whether in the form of things for certificate or for medals, is vastly in excess of what comes before either of the other Committees.

I attended the recent general meeting specially in the hope that the President in his annual address would show some way or lay down some principle by which the Committees might be guided in making awards in the future. That seems to me to have been what the Council should have done, or otherwise have, beyond publishing the table of awards, made no further reference to it. I was also disappointed that no Fellow referred to the subject at the meeting, and that fact indicates indifference with every desire to see much higher standards in relation to awards prevailing, for they are now far too cheaply bestowed. Yet I cannot see, without the Council take action and formulate some definite rule, how any reform is to be effected.—ALEX. DEAN.

FORCING VEGETABLES.

(Concluded from page 135.)

ASPARAGUS.

NATURALLY this choice vegetable is more esteemed than Seakale with most people, especially by the majority of cooks, and I presume more satisfactory results are obtained in cooking this than Kale. The plan usually adopted, and which I do myself, is to make up a hotbed with fresh leaves and stable manure, two parts of the former to one of the latter. This should have been thrown together previously, and turned over a few times to sweeten it. The Asparagus will stand more heat top and bottom than Seakale. But this must not be much above 60°. A sheltered place should be chosen, but where plenty of light and sun can reach the bed. In putting the material together it should be well trodden, as this helps to retain the heat for a longer period. The bed should be a trifle higher at the back, especially if the frame at command has not a good angle, and space allowed for lining all around the frame. In fact, it should (the bed I mean) be made 18 inches larger each way than the frame to be placed upon it, so that the lining can be renewed when necessary.

When the frame is placed upon the bed, 3 or 4 inches of short manure or rough leaf soil should be put into it in readiness to receive the roots as soon as you ascertain that the heat is safe to do this. A test stick should have been placed in when the hotbed was made. If, after a week or ten days, when you withdraw the stick and can comfortably hold it in your hand without finding it too hot all will be well. It is far better to be on the safe side, as one can always add heating material in the way of lining. In fact, such a winter as we had up to Christmas, a bed of leaves only would be enough. Now, the next thing to see about is the crowns. These should be not less than three years old, but can be much more, and an advantage no doubt, as the crowns should be larger. They should be lifted and placed in the frame with as little delay as possible, putting the roots thickly together and placing about 4 inches of sifted leaf soil over the roots and crowns, and when all is finished there should be 6 to 9 inches clear of the glass. This will give room for the "grass" to grow.

The lights can be kept closed until you see the heads appearing, when a little air should be given on all favourable occasions, according to the state of the weather, which will assist in giving a green tint to the grass, and which should be cut when about 6 inches in length, tied in bundles of fifty, and stood in a little water if not required for immediate use. The frame must be well matted every night in case a frost should occur. And, again, I say, do not neglect to see to the lining. I usually start my first batch about the 15th of November, but this season it was on the 20th, and cut on December 7th, just eighteen days. My frames are 6 feet by 8 feet, and I fill one of these. It takes about eighty crowns. But as with Seakale, more or less, must be the grower's motto according to his requirements. I continue to cut from this first batch just one month. In the meantime the second frame had been planted—namely, December 18th, or four weeks from the first batch, and I find this is quite often enough. It is not necessary to make a new hotbed each

time. A renewal of lining and move up the inside of the bed is all that is necessary as a rule for two or three batches.

Those who are fortunate enough to have a pit (lean-to) with a 3-inch hot-water pipe running along the front can use this with advantage, and if there should be bottom-heat pipes all will be right. If not, new leaves with a little manure will give enough heat for this if placed in the bottom. Here, again, the temperature should not much exceed 60°, or the grass will be spindly. Very little water will be required during the dull months of December and January, a syringing occasionally will generally suffice unless hot-water pipes supply the bottom and top heat, when more will be necessary, and this should be at a temperature of 75°, when none will be required in the hotbeds until the sun has more power. Later batches, say from the middle of March, can be brought on in a cold pit that has been recently filled with fresh leaves during the winter months, the sun at this date being no mean factor. Some gardeners introduce a few batches into a vinery that may be started early in February, but I do not consider it's a good plan; it appears out of place, and I do not think very good results are obtained, there being nothing like a little bottom heat for this delicious and easily forced vegetable.

KIDNEY BEANS.

This is another acceptable vegetable early in the year, but I find from experience that unless one has good light and well heated houses, satisfactory results are not obtained by sowing much earlier than the new year, and in a temperature of 60° to 65°, with a rise of 10° by sun heat. It will take about seven weeks to have them fit to gather from the time of sowing, 8-inch pots are the most suitable for the first few batches. Some sow as early as August, so as to carry on without any break after the plants in the open ground have ceased bearing, but during November and December, generally dark, dull months, the returns are not very satisfactory. I think the end of December, or early in January, is soon enough. Seeds should be sown every three weeks or a month. Plenty of light is necessary for this vegetable, or they get drawn up very soon. They require to be kept fairly near the glass, and do well on shelves. The syringe must be constantly moved among them whenever the weather is favourable, if not they soon fall a prey to that horrid pest, red spider.

A fairly light, though rich, soil is necessary; loam, leaf soil, and a little manure from a spent Mushroom bed forms a good compost. The pots should be filled to within 3 inches of the top and made fairly firm, and about ten seeds sown in each pot, and covered with 1½ inch of soil. If all the seeds come up, one can easily thin them out to six, which will be enough to leave. I generally pinch out the tops as soon as the first pair of proper leaves are formed, which causes them to throw up two growths. They will take a fair amount of water at this stage; in fact, they must never be too much on the dry side or spider will soon appear. As soon as they are from 4 to 6 inches high some twiggy shoots should be placed around them as a support. Old worn-out birch brooms are useful for this. When in flower they should be kept rather drier overhead, and a circulation of air is beneficial at this stage.

As soon as they are set some kind of manure should be given them two or three times a week. I find a little weak guano water, also diluted farmyard drainings, suit them very well. They should be well syringed morning and afternoons, when closing time arrives. The beans, as they become fit, ought to be gathered and tied up in small bundles, and their ends stood in water until you have enough for a dish. Ten and twelve-inch pots can be used after the month of February is past, and they do not dry up as fast as the smaller pots. Boxes, too, are often made use of for later crops, about 2 feet 3 inches long, 9 or 10 inches wide, and the same in depth. These crops can be brought along in Peach houses or the like, while many gardeners have to grow them in their vineries; but I must say I do not like them brought in here in case that foe of ours I have spoken of makes its appearance. Heated pits, similar to those I mentioned anent the Asparagus, make excellent places to grow them in when sown in rows 15 inches apart. A crop can also be hastened a few weeks by sowing in a frame or cold pit, and shut up early in the afternoons and well syringed and matted up at night. Ne Plus Ultra I find very good for forcing, and Canadian Wonder for the latest hatches.

POTATOES.

These are forced in several ways. I find 9 and 12-inch pots suitable for a few early dishes. I place one tuber in the smaller pot and two in the larger one. Loamy soil, with a little horse droppings, makes a good compost. I start a batch early in January, and place them in an early Peach house at work. The tubers should have been previously prepared—that is, stood on their ends in a box with a little leaf soil scattered among them, and placed in the house about ten days before. These must be placed in their pots when 2 inches of growth has taken place. They must be given plenty of light, also air, when at all favourable, and I keep moving mine from house to house, Peach or vineries, as they are started, because they do not like too much heat. I leave room in the pots for an earthing up, as it were, when they get about 6 inches high.

Frames placed on a hotbed make a very suitable place too, and most excellent crops can be grown here. A foot of soil should be placed in the frame, and the tubers planted 5 inches deep, 8 inches apart, and 10 inches from row to row. I also make a point of earthing mine up with 3 inches of soil when about 6 inches high. This assists to keep the growths upright. Here they will take a fair amount of water when in active growth, and the lights are drawn back altogether very mild days, but placed on early in the afternoon and matted each night. Heated and unheated pits, too, are useful for forwarding this ever-required vegetable. As I have already said, they must have abundance of air as the season advances, and when water is necessary it should have been

warmed to about 60°. I ought to add that I only advocate the pot method for the very earliest dishes. Mine in the pits follow these, and are usually planted about the 20th of January. I find the Old Ashleaf, Veitch's, Myatt's, and Rivers', Sharpe's Victor, and Early Puritan good for forcing, but I prefer the first and last named varieties.

CARROTS.

This is another acceptable dish, and much appreciated when in a young state, and may be brought on much earlier than it is possible to have them outside by making up a bed of leaves and placing a frame thereon. What they require is similar to Potatoes—a gentle lasting heat, which fresh collected leaves will give. The frame should have about 9 inches of soil, which should be light and of a sandy nature, leaving space of 9 or 10 inches for the tops. The seed can be sown in drills 4 to 6 inches apart or broadcast. I adopt this last named plan, and it should not be sown too thickly, for if it is thinning must be done very early, as they soon get crowded. The frame can be kept closed until the seeds germinate, when a little air will be necessary whenever the weather will permit. The lights can be drawn off altogether when mild and replaced about 3.30. If bright, lightly syringe the bed, and then close up and replace mats as long as cold weather lasts. I do not think there is much gained by sowing until the middle of January. Parisian Forcing or Sutton's Early Gem are suitable for this work.—
[Paper read by Mr. J. MAYNE, Bickton, at a Meeting of the Devon and Exeter Gardeners' Association]

THE ROYAL GARDENERS' ORPHAN FUND.

ANNUAL MEETING.

THE annual meeting of the above charity was held at Anderton's Hotel on Friday last. Amongst those present were Messrs. W. Marshall (in the chair), W. Poupert, B. Wynne, G. W. Cummins, J. Lyne, W. Bates, G. Reynolds, J. Walker, F. Assbee, A. W. G. Weeks, and H. J. Jones. After the usual preliminary proceedings the Chairman moved the adoption of the report and balance-sheet, which is appended below. The motion was seconded by Mr. Fraser, and carried without any dissension.

In presenting their ninth annual report the Executive Committee can heartily congratulate the subscribers on another year's operations—generally satisfactory and encouraging.

If the financial support given to the Fund as annual subscriptions be not as large as the Committee could desire, yet from other sources it is evenly maintained and the interest in the progress of the Fund widely felt.

The Fund was instituted in 1887 in commemoration of the Jubilee of Her Majesty the Queen.

The year 1897 finds your Committee assisting in commemorating the

CASH STATEMENT FOR THE YEAR ENDING DECEMBER 31st, 1896.

RECEIPTS.	£	s.	d.
To Balance from last Account...	600	1	11
„ Subscriptions, General ...	£291	5	6
„ Ditto, Collected by Local Secs. ...	74	0	0
„ Donations, General (including proceeds of Sales of Flowers, Boxes, Entertainments, &c. ...)	156	1	10
„ Ditto, Collected by Local Secs. ...	58	13	9
„ The Emma Sherwood Memorial ...	13	0	0
„ Annual Dinner ...	887	3	6
„ Card Collection ...	28	8	8
„ Advertisements in List of Subscribers ...	27	14	0
„ Dividends on Stock and Interest on Deposit ...	225	17	7
	£2362	6	9

NOTE:—INVESTMENTS

2½ per cent. Consols ...	£7070	6	10
3 per cent. Canada Stock ..	2000	0	0
	£9070	6	10

longest reign of a British Sovereign, and in consideration of this auspicious event they recommend to the subscribers that the whole of the candidates be elected by resolution of the annual meeting.

To those who have so generously, and in not a few cases, so constantly supported the Fund by means of special donations, the Committee owe a great debt of gratitude. By sums derived from money boxes, concerts, the opening to the public inspection of gardens and plant houses, especially during the season of the Chrysanthemum, the sale of flowers, &c., considerable additions have been made to the Fund.

The annual festival dinner—presided over by His Grace the Duke of Bedford, the President of the Fund—proved a most gratifying success, resulting in a considerable augmentation to the charity; and the Committee tender to His Grace their most grateful thanks for his able advocacy of the claims of the institution and also for his generous contribution. Among other contributions to the Festival Fund was that of the tenants of, and growers of produce for Covent Garden Market, who subscribed the sum of £341 15s. 6d., a measure of support highly appreciated by the Committee; and they also desire to gratefully acknowledge the great assistance rendered by Mr. J. Assbee in obtaining this welcome gift.

The number of children who have been placed on the Fund since the commencement is eighty-five; of this number fifty-eight are now receiving the benefits of the Fund, to be increased by those recommended for election this day. The number of children who through the age limit and other causes have ceased to be chargeable to the Fund is twenty-seven.

One most pleasing cause of gratification to the Committee is the letters of deep and earnest thankfulness received from the mothers of children who have ceased to be chargeable to the Fund, acknowledging the great help the quarterly payments have proved to them in times of necessity.

The Committee, by means of the special grants they are empowered to make, have also been enabled to render timely assistance in starting several orphans in life.

The total amount paid to the children since the commencement of the Fund is £4918.

The members of the Executive Committee who retire by rotation according to Rule IV., are Messrs. Marshall, Bates, Dean, Herbst, Jones, May, Reynolds, and Weeks, all of whom being eligible offer themselves for re-election.

The best thanks of this Committee are due, and are hereby tendered to the Treasurer, T. B. Haywood, Esq., and the Auditor, John Fraser, Esq., who retire after holding office since the establishment of the Fund. The Committee have great pleasure in announcing that N. N. Sherwood, Esq. (a munificent supporter of the Fund), has kindly consented to accept the office of Treasurer, and Peter Barr, Esq., that of Auditor, and they are hereby nominated by the Committee.

Mr. A. F. Barron is again nominated as Secretary at the same remuneration.

EXPENDITURE.	£	s.	d.
By Allowances to Orphans ...	£850	5	0
„ Emma Sherwood Memorial ...	13	0	0
„ Grants in Aid... ..	5	0	0
„ Annual Dinner ...	161	17	8
„ Secretary's Salary ...	105	0	0
„ Printing and Posting Subscribers' Lists ...	31	8	6
„ Printing and Stationery ...	16	14	4
„ Annual, General, and Committee Meetings ...	13	2	3
„ Postages ...	16	10	4
„ Bank Charges... ..	1	6	2
„ Sundry Expenses (Petty Cash) ...	18	9	8
„ Purchase of £500 3 per cent. Canada Stock ...	530	1	0
„ Balance:			
Cash at Bankers ...	492	4	3
Cash in Hand ...	7	7	7
Cash on Deposit ...	100	0	0
	599	11	10
	£2362	6	9

Having inspected the Securities and Examined the Books and Vouchers supplied to us, we hereby Certify the above account to be correct.

(Signed) PETER BARR
M. ROWAN, CLAPHAM } Auditors.

Dated, January 23rd, 1897.

It was proposed by Mr. Assbee, and seconded by Mr. Reynolds, that a hearty vote of thanks be accorded to the retiring Treasurer and Auditor, Messrs. T. B. Haywood and J. Fraser. Mr. B. Wynne then moved that Mr. N. N. Sherwood be appointed Treasurer in the place of Mr. Haywood. This proposition was agreeably accepted, and carried unanimously. On the proposition of Mr. Walker, and seconded by Mr. Reynolds, it was agreed that Mr. Peter Barr be elected Auditor in place of Mr. J. Fraser. Mr. Poupert moved that a vote of thanks be given to the retiring members of the Committee, and that they all be re-elected. Mr. Cummins seconded the resolution, which was carried unanimously. On the proposition of Mr. W. Marshall, seconded by Mr. R. Dean, Mr. A. F. Barron was duly re-elected Secretary to the Institution.

Mr. Marshall then moved that in order to commemorate the Diamond Jubilee of Her Most Gracious Majesty the Queen, the whole thirteen children who were presented to receive benefit should be placed on the Fund without election. He congratulated the Fund on being able to do this, stating that during the ten years of its existence nearly £5000 had been spent in charity, and that they had been able to put away for future use a sum of £10,000. Mr. J. Lyne seconded the motion, which was carried without dissension. It was further agreed that a copy of this resolution should be sent to Her Majesty and also to Her Royal Highness the Princess of Wales. There being no other business to transact, a vote of thanks to Mr. Marshall for presiding brought the proceedings to a close.

ANNUAL DINNER.

At the dinner held in the evening between twenty and thirty were present, Mr. Owen Thomas presiding. The Chairman's speech was a happy one, and proved how thoroughly he had entered into the details of the charity, and how truly he was the cause at heart. He said:—It only seems like yesterday when we were celebrating the Jubilee year of Her Majesty's accession to the throne. It was on this occasion when gardeners, like other loyal members of the community, were looking out for a way to give expression to their loyalty. It occurred to Mr. Penney, then of Sandringham, and Mr. Clayton of Grimston, that the best way this expression could take would be by forming an institution to befriend the orphans of gardeners, and I cannot but think that both these gentlemen will always look back with feelings of thankfulness for the inspiration that came to them to support the institution of this Fund. At first the idea was met by many with misgivings, as being too great an undertaking to be successfully launched. However, there were a few bold spirits in those days, and the prospect was no sooner mentioned by the gardening press than it was taken up with acclamation, not only by horticulturists but also by the garden loving public, and the proud position the Fund occupies to-day proves beyond doubt that a happier or a better suggestion could not have been made.

So much for the reception of the Fund. What shall be said of its growth? The excellent report in the hands of members will tell them much better than I can; but I may be allowed to say this, that nearly £5000 has been paid to destitute orphans of gardeners during the past nine years, besides a sum of £9000 which has been invested for their future benefit. This is a record to be proud of, and the management is to be congratulated. This great success has been brought about in the first place, I think, by virtue of the merit of the Charity, Gardeners' Orphans.

The English people have a garden, and they have opened their hearts and their pockets wide to help the objects of this charity. We know that our happy and favoured country is full of benevolent and kindly feeling towards the weak and the destitute, but it is not everyone who has the power or the happy faculty of being able to bring this good quality into active existence. The Orphan Fund is happy in having those at its head who take an active personal and practical interest in its welfare. When it is said that at the head of the charity we have the honoured and much-loved name of H.R.H. the Princess of Wales, with His Grace the Duke of Bedford as President, our esteemed friend Mr. Marshall as Chairman of the Executive Committee, with our old friend Mr. Barron as Secretary, besides a working Committee of gentlemen, everyone of whom is a well-known horticulturist, it is not to be wondered at the success which has attended the establishment of the Fund. We must not forget that the establishment of this Institution has imposed a serious responsibility on the shoulders of those who are responsible for its management and maintenance.

To-day there have been added thirteen orphans to the benefit of the Fund, at an extra annual expenditure to the charity of £170. A better commemoration of Her Majesty's long reign no institution could possibly make, and in view of this greater responsibility and greater income must be forthcoming, or the Fund will be in the same position as the orphans are now in—namely, with *No provision*. Gentlemen, if you will look down the list of orphan candidates for election, you will find the melancholy words, *No provision, no provision*, repeated over and over again. To me these words express a feeling of utter despair and desolation as represented in the case of the widow and destitute orphans. It means to these not only an empty chair, but an empty cupboard, an empty grate, and, often worse than all, an empty heart. The object of this charity is to help to ease the widow's burden, and to brighten the path of the orphan child. The wealthy lovers of gardens and gardening, as well as members of the horticultural trade, have come out nobly to help the garden charities, both this one and the older charity, in the welfare of which most of us are deeply interested.

It is with regret, and I say pained regret, that the fact must be stated that gardeners generally have not rallied round and identified themselves with the welfare of the garden charities as they ought. I do not know why; it is not from the want of kindly thoughts and feelings, I am quite sure, and I do not think it can be from the want of 5s. a year. Let each of those who does not subscribe answer for himself this eventful year in the best of all ways, by sending to Mr. Barron his subscription. What we want is for both the garden charities to become in reality national garden charities, to embrace the name of every gardener worthy of the name throughout the land, so that those who do not support the charity will be the exception rather than the rule, as at present. Gentlemen, we must gratefully acknowledge the valuable and increased help given by our earnest and kind friends in the provinces, and on their continued valuable help must largely depend the future welfare of this charity.

But the greatest source of our strength as regards the future must, I think, lie with the rising generation of young gardeners. To make it easier for them to join the Institution may I suggest, if your rules will permit of its being done, that you reduce the subscription to 2s. 6d. a year, and if this can be done I would ask every gardener who has the interest of the charity at heart to bring the subject before his young men, and I am sure a liberal response would be the result. This would open an easy door of entrance to the young, and once you secure his interest and sympathy you may depend upon it that in the great majority of instances he will prove a steadfast friend and supporter of the charity, and at the same time become a much better gardener.

It cannot be too well known that this is a purely benevolent institu-

tion, and that no question is asked as to the nationality of the candidates, or of what religion their parents may have been. Neither are the orphans debarred from the benefits of the Fund if the fathers in their lifetime have neglected to support the Institution. At the same time I cannot help saying that I would not give much for that man's love or care for his wife and children who refuses to do what he can whilst in health, on the funds of which those who are near and dear to him may be compelled to throw themselves through death or misfortune. Gentlemen, I ask you to drink to the "Continued Success and Prosperity of the Royal Gardeners' Orphan Fund."

CALLISTACHYS LONGIFOLIA.

I CANNOT understand why so many of the beautiful hardwooded plants have been allowed to slip out of cultivation. *Callistachys*



FIG. 37.—CALLISTACHYS LONGIFOLIA.

longifolia (fig. 37) used to be a special favourite of mine, but I have not seen it for years. It should be more generally grown. It blooms during the summer. The leaves are lanceolate, mucronate, some 6 inches long, smooth, dark green above. The standards of the flowers are yellow, and the wings purple. When properly treated the plants are extremely beautiful, and ought to be more frequently seen in gardens.

TADCASTER PAXTON SOCIETY. — On the 18th February Mr. W. Callum, B.A., head master of Tadcaster Grammar School, read a paper on the "Flora of Bygone Ages." He first reviewed the history of the earth from its incandescent condition through its successive stages of igneous and sedimentary rock formations. The flora of the carboniferous period was dealt with in detail. A rich collection of fossils was afterwards inspected. A hearty vote of thanks was accorded the essayist by a very full meeting of the Society.—J. S. G.

CARNATIONS AT RANGEMORE.

(Concluded from page 121.)

THE large flowering house runs north and south, and is built according to the rake of the ground—that is, the house gradually falls to the south. It has a central bed and stages on each side. The Malmaisons occupy the south end division, and the tree varieties the northern portion.

A collection of these tree varieties is not aimed at; on the contrary, numbers of what are proved to produce good-sized flowers and are free flowering is the object in view. This is evidently the right and only method by which a profusion of flowers can be had during the dull months of winter. New varieties are tried, and if they come up to the standard of excellence required they are propagated and grown in quantity.

Very few plants of Miss Joliffe are grown, not because it is not sufficiently free but the individual flowers are not large enough. J. S. Rugus was producing some very fine flowers, and seems destined to push out Winter Cheer. President Carnot, a dark flower and very free, is a favourite, and preferred to Uriah Pike. Mrs. Leopold de Rothschild was also prominent, as well as many others. Germania added a charm to the whole, being grown in large quantities and carefully arranged amongst the other colours throughout the house. The whole of these plants were in 7-inch pots, the plants being dwarf, very healthy, and full of flower and buds.

These plants are evidently managed on two principles, Germania and varieties of this nature being grown differently from what may be termed the real tree varieties. The plants of Germania raised from layers were at the time of my visit being potted into 5-inch pots. The plants were arranged closely to the glass, and would be allowed to flower, afterwards transferring them into 7-inch pots, these being afterwards grown outside until September the same as the trees, and housed with them. The tree varieties are raised by cuttings, the first earliest batch having been rooted and potted singly; in fact, might be termed established in 2½-inch pots. These were arranged close to the glass—a feature very observable at Rangemore.

Many cuttings were in process of rooting. These are young short growths from the axils of the leaves of flowering plants, and were inserted in sandy soil in 2½-inch pots, five cuttings in each. These were plunged amongst cocoa-nut fibre refuse close to the glass in a very low house. The bottom heat ranged about 80°, and the lights were not kept air-tight, sufficient air being admitted to prevent damping. When rooted they are potted singly, and grown with the earlier rooted batch.

A little pinching is done during the early stages of growth to induce the plants to branch, but too much pinching is not practised. The young plants as they need more root room are placed into 5-inch, and when they require more root room into 7-inch, the size they flower in.

About the time they are ready for 7-inch they are placed outside during the summer, which largely accounts for the dwarf sturdy nature of the plants. For their provision, while outside, beds 3 or 4 feet wide have been formed by 10-inch boards, which are filled with ashes and the pots plunged during hot bright weather to prevent too frequent watering. Over these beds has been arranged a wood framing, sloping from the centre either way like a span-roofed house, but sufficiently high so that watering and any other attention the plants need can be done without the woodwork being in the way. During wet weather waterproof canvas is stretched over the woodwork to shoot off heavy rains. This is a capital plan, the plants having plenty of air and a fair amount of light, even when protected from heavy rains.

Firm potting is practised, the plants are given room to develop, and with careful watering, judicious feeding while in the flowering house, abundance of flowers result.—WM. BARDNEY.

THE YOUNG GARDENERS' DOMAIN.

R.H.S. EXAMINATIONS.

I HAVE read with considerable interest "Student's" notes and examples on the above examinations lately in the Journal, and I am sure all readers, especially we youngsters, should be very grateful to him for his valuable information on the subject. I am rather surprised, though, that no questions were given by the Society with reference to the numerous Latin and French names and terms so commonly used by gardeners. I should have thought that a few questions as to the meanings of some Latin phrases at least would have been set, if not a few French ones also. Our first ambition when we start on our gardening career is to know the names of the various plants, and we look on our superiors as veritable encyclopædias, they are so well acquainted with them. How much better if, instead of knowing only the Latin or botanical names, we also know the English meaning as well. There are many of our leading men who are well up in the majority of plants, Orchids included, as far as their botanical names go, but quite ignorant as to the meaning of the same. Not only does this knowledge of a little Latin assist us in nomenclature, but should we be at all interested in the science of botany, which all gardeners should be, the various terms as well as the sections of plants can be better appreciated and understood through it.

As to the French of course we do not get so much of it in our work, but still it is very useful in some cases. For instance, various kinds of fruits bear the French names, notably Pears. In the plant section a vast number of our best Chrysanthemums are French named. If we are pretty well up in French we can understand the meanings of all these names, and a great number of mistakes can be avoided as to

pronunciation and orthography. There is no doubt that it is a grand thing to be a good grower of plants, but still it greatly enhances the interest of work if their names are perfectly understood. I should think if the R.H.S. included a few questions in their examination papers pertaining to these languages as they are used by gardeners, it would be a stimulus for us to improve in this department.—GARÇON.

FREESIA REFRACTA ALBA.

THIS charming sweet-scented flower requires very simple cultivation, and forms one of the chief features each season. After the plants have ceased flowering they are gradually dried off, and the pots placed on their sides at the back of a cool pit protected from the wet. About the second week in August, before the bulbs begin to start, they are shaken out and potted in a compost of light fibry loam, leaf mould, and decomposed manure in equal proportions, with a sprinkling of sand. About twenty bulbs are placed in a 32-size pot, so as to produce a good mass of flowers and foliage. After being well watered they are set in a cold frame and covered with ashes until the foliage appears well above the surface. They are then taken out and placed on shelves in a cool house, the temperature being allowed to drop to 38° on severe nights. Weak liquid manure is given when the plants are well established. We have now 150 pots of Freesias, the plants just coming into flower, and these will be very useful for greenhouse and decorative purposes.—J. B., Eastnor Castle Gardens.

NOTES ON LAPAGERIAS.

HAVING read with interest for some weeks past "The Young Gardeners' Domain," I now venture to contribute a few notes on Lapagerias. In most conservatories some kind of creepers are required for the adornment of the walls and roofs, and I think Lapagerias may be placed prominently amongst them. The plants succeed best planted in a bed of good loam, with a little peat and silver sand intermixed. They commence making their young growths about the beginning of April, and when these are from 4 to 6 inches in length they should be carefully trained to the wires or trelliswork.

It is essential that the syringe be freely used amongst the foliage of Lapagerias on all bright days during their period of growth up to the time of flowering, which is usually about July. One special feature about this conservatory climber is the long time it continues to produce its beautiful wax-like flowers, even after most of our other creepers of the conservatory are at rest. We have Lapagerias in quantities from July to January. The flowers are very effective when used for table decoration, and are invaluable when wired for the making of wreaths and crosses. Propagation may be effected by seeds or from suckers, which the plants produce when in a thriving condition.—H. H., Staffs.

VICTORIAN ERA FUND.

WITH pleasure I read the appeal made by "Yorkshireman" to young gardeners in aid of this deserving Fund. I hope it will be met by hearty approval amongst the young men of our craft, and that they will give what they can, be it much or little. For my own part I will give one day's wage in aid of it, as no doubt many more will do for the cause which is to provide means for the aged and infirm to obtain the necessities of life in their declining years. Perhaps the days may come when some of us may stand in need of a helping hand; therefore the present time is ours to act, that those who follow in our steps may be encouraged to do the same.

A short time ago I read in the pages of the *Journal of Horticulture* a suggestion made by our esteemed friend "An Old Boy" "That he hoped if the Committee of the Gardeners' Royal Benevolent Society could see their way clear to admit young gardeners as members of the Society at an annual subscription of 10s. 6d. instead of a guinea until they filled a higher position."

This I consider to be an excellent idea, and I hope it may soon come to pass, as I am sure it will be the means of getting many young gardeners to join who otherwise would not. It is a Society which ought to have our support, so let us give it.—J. W.

IMANTOPHYLLUMS (CLIVIAS).

CLIVIAS are not grown so extensively as their good qualities deserve. They are among the most useful of plants for the decoration of the conservatory, and cut purposes also, during the winter and spring months. They are of the easiest cultivation, and will grow either in a stove, intermediate house, or a greenhouse. A temperature of 50° to 55° suits them admirably. Maintain a moist atmosphere during the growing season, and a moderately dry one when growth is completed. They require abundance of water during summer, and will be greatly benefited by frequent applications of liquid or artificial manure.

Some of the new varieties are marked improvements on the old typical *miniaturum*, as for instance *Mdlle. Marie Reimers*, orange scarlet; *Distinction*, brilliant orange scarlet; and *Splendens*, dark orange. The trusses and flowers are larger, brighter in colour, and more refined and attractive in every respect. Where plants of small size are required they may be grown in 6 or 7-inch pots. By this means we produce a succession of flowers, instead of having large numbers at one time on one plant.

Clivias grow well in a mixture of good fibrous loam and leaf soil, incorporated with coarse silver sand. They should not be overpotted or disturbed unnecessarily, otherwise they will not flower satisfactorily. When the tips of the foliage show signs of decay the plants should be examined and repotted, or they will soon present an unsightly appearance.—C. W. M.

GLORIOSA SUPERBA.

THIS is a stove climber, than which I think nothing looks more handsome on a roof when the plants are in bloom. The colour of *G. superba* is a deep rich orange and red, the flowers hanging from 10 to 12 inches from the stem of the plants. The cultivation is very easy, and the following soil I have found to do exceedingly well—namely, good fibrous peat, light loam, good leaf mould, and spent manure from old Mushroom beds in equal proportions, with the addition of some small charcoal and lime rubbish.

After the tubers are potted, the soil being in a proper working order, no water will be required before they have started into growth, after which a good moist heat is necessary. The syringe must be requisitioned, or the leaves may get smothered in thrips and red spider, which will quickly spoil the beauty of the specimens.

When the season of flowering is past they should be gradually dried and placed on the shelf in a colder house until they are required for starting for the next season. This *Gloriosa* can also be grown from seed, the seed being placed singly in small pots, which must be plunged in a close frame. I have also seen the seed vegetate on the ashes in which the plants were stood on in the stove, and some of these plants were also potted, and made good tubers for the following season.—W. L.

PRIMULA OBCONICA.

I THINK this valuable greenhouse plant is often looked down upon as being unworthy of cultivation, but in my opinion a freer and a more easily cultivated plant does not exist. The old-fashioned system of procedure is to divide the old plants in order to obtain a fresh stock, the results of which seldom give satisfactory results. A much better way is to sow seeds about the middle of March in a light compost; prick the seedlings, as soon as they are large enough to handle, into thumb pots or shallow pans, eventually transferring to other pots as the plants require it. A good compost to grow them in is formed of two parts fibrous loam, one part of leaf soil, and half a part of sharp sand, with a good dash of wood ashes.

After the pots are well filled with roots liquid manure, made of the excreta of fowls, and soot will greatly benefit the plants if given occasionally in weak doses through the growing season. Through the summer all buds that appear must be picked off until the end of October, when the plants may be allowed to flower, which they will do without cessation right through the winter. The flowers stand remarkably well, both for house and table decorations. Facilities do not always exist for growing forced flowers in large quantities, and in such cases one cannot do better than raise a number of *Primula obconica* from seeds, so as to have a good supply of its charming lilac-white blooms through the winter.—ANXIOUS, G. H.

CYCLAMENS.

THESE are among the most useful of all our autumn, winter, and spring-flowering greenhouse plants. With good treatment plants may be had in flower from September till March, which makes them worthy of more extended cultivation, especially where there is a demand for cut flowers in the winter.

The best time to sow the seed is during the month of August, in well-drained pots, in a compost of fine loam, leaf mould, and sand in equal parts. Cover the seed pots with a square of glass to preserve moisture and protect the seeds, and place them in a temperature of 60° to 65°. When the seedlings appear remove the glass, and place them on a shelf to prevent their becoming drawn. When large enough to handle they should be pricked about an inch apart in pans, using the same compost as advised for sowing, but not quite so fine, and kept in a similar temperature till spring.

About the month of March they should be placed in 3-inch pots, using a compost of two parts loam, one part leaf mould, and one part old Mushroom bed refuse, with sufficient sand to keep it open, and maintain a temperature of 55°. When these pots become full of roots shift in 5-inch pots, in which they will flower admirably, this time adding a little fertiliser to the soil. During the summer months they do best stood on ashes in a cold frame, keeping them well shaded from the sun, syringing lightly every afternoon of bright days.

Never allow the plants to get dry during their growing season. I have seen the foliage turn yellow and the crowns go blind through not having sufficient water. When the pots become full of roots weak liquid manure once a week, or a light sprinkling of artificial manure on the surface once a fortnight, is essential. Give all the air possible to promote sturdy growth, and keep the plants free from green fly by frequent fumigations.

Cyclamens may be grown a second year by drying moderately and resting the corms for a time after they have finished flowering, afterwards reducing the soil and repotting. They should then receive similar treatment to that previously advised for young plants.—AN ENGLISHMAN IN SCOTLAND.

NOTES FROM A COFFEE ESTATE.

THE following extracts, which I hope may interest many and supply wished-for information to others, are from the letter of a late bothy mate, now on a Coffee estate in British Central Africa.

"The estate consists of over 2000 acres lying at an altitude of 3500 feet above sea level, has two streams on it, and is for the most part covered with trees from 20 to 50 feet high. Bamboos and Palms abound in the streams. The flora is very fine. I have discovered a few Orchids, Ferns in abundance, *Gladiolus*, *Amaryllis*, many creepers, and a host of other gorgeous flowers. Any European fruits introduced here seem to

do well. We have wild Figs, Bananas, Pine Apple, Papaw, Guava, Lime, and others; guinea fowl, buck, hartebeeste, sable, pigs, and zebra, besides the larger and fiercer beasts; a host of snakes. . . .

"With a few 'boys' (we have had 500 at a time) we cleared half an acre for nursery and put in Coffee seed to plant 150 acres—1200 plants per acre. The seeds take nine weeks to germinate, growing slowly at first, then coming away with a rush.

"The houses are of the mud and wattle style, built by inserting stout poles 2 feet apart for walls, to which bamboo are lashed with fibre, and mud plastered inside and out. The outside mud is taken from the ant hills, there being many about, and as large as an ordinary house. . . .

"We mark out plantations of from 2 to 18 acres, cutting down trees and carrying them off to the sides, afterwards lining off in beds 6 feet by 6 feet, using pegs of bamboo. Pits 2 feet deep and 18 inches wide are made for each seedling. We plant in the rainy season—November till March, hence hoeing and weeding, gathering the crops, and storing is all that is required. There is no successful system of manuring. Some planters use shade plants, one to every four or six others, thus minimising disease and insuring more regular crops.

"The workers get from 4 to 10 yards of calico (3d. per yard) wages, and 4 yards 'food' cloth per month! They engage for terms of from two to six months. At sunrise the horn or lapenga is blown to start the boys. . . .

"May till November is the dry season, November till April the rainy season. We had frost last June—June and July being the coldest months. I could get you a large collection of beautiful insects."

Thus do they labour in another sphere
To produce for us what we cannot grow here.

—A YOUNG SCOT.



HARDY FRUIT GARDEN.

Fruit Trees on Grass.—The present is a suitable time to establish fruit trees on grass. Standards are the most common form of trees sought after for this purpose. Until, however, the trees are growing freely the soil immediately surrounding them must be kept free from both grass and weeds. It is important that they be securely staked, owing to the more generally exposed positions such situations present. The stems must be protected from the attacks of animals.

Preparing Sites and Planting.—In preparing the positions for planting excavate the soil 6 to 9 feet in diameter. The top spit of soil should be thrown out and the bottom broken up, adding to this portion a layer of decayed manure, forking it in. Return the soil which was thrown out, intermixing with it, especially if heavy, some gritty material or burnt refuse. Insert a strong stake in the centre sufficiently long for the purpose of binding the tree to. Plant closely to it, spreading out the roots in a wide hole of shallow depth and slightly convex shape. Fold some soft material round the stems, securing the trees to the stakes with copper wire. Large standard Apples and Pears ought to be 30 feet apart, standard Plums and Damsons 15 to 20 feet apart.

Preparing Soil and Planting Raspberries.—Raspberries delight in rich soil. Before planting, thorough preparation and enrichment of the soil is essential to obtain the best results. It may be desirable to trench the ground, and this will afford an opportunity to incorporate manure freely. It must be well decomposed. It will not have the effect of promoting growth too luxuriant in character, as it would have, probably, in the case of most other fruits. Though the Raspberry is mainly a surface rooter, yet strong primary roots descend to a considerable depth, and assist in supporting the plants, also encouraging the free production of suckers. Of the latter those which do not ramble away from the line of the clumps or rows give the strong canes, a limited number of the best of which are annually retained for the future bearing.

Training.—Raspberries may be planted in rows or clumps. Rows should run parallel to one another at a distance of 4 to 6 feet between. Strong robust varieties may be planted the wider distance, and the plants in the rows given a clear space of 2 feet. Clumps must be planted 3 feet apart in rows 5 or 6 feet asunder. Place three plants 6 inches apart in triangular form with a stout stake in the centre. When the plants are established the canes are shortened annually to the height of the stake, and round it they are tied. The canes in the espalier method are best tied to wires strained between stout posts 3 inches thick fixed at each end of rows.

Treatment after Planting.—The first season, however, after planting the canes ought to be cut down close to the soil in order to encourage the vigorous production of new ones. By sacrificing a crop, which could only be a light one, the first year, the plants are fully established for the next and succeeding seasons. A manurial mulch over the roots will assist in maintaining the ground uniformly moist.

Pruning Cob Nuts and Filberts.—The catkins are very conspicuous on Cob Nuts and Filberts at the present time. They depend from the upper parts of shoots and side branches, and are plentifully supplied with pollen, which flies about in clouds when the catkins are shaken by the wind or otherwise. The female blossoms are situated below, being inconspicuous buds with crimson styles. These should be fully developed, and the catkins have distributed their pollen before pruning is attempted. Thinning out and regulating may be the first point attended to. The centres of Nut bushes are best kept open. The permanent branches must not be allowed to crowd one another. The side shoots may be pruned to various lengths. Some are left long in order to retain the catkins if the latter are still wanted; others which may be fruitless prune closely in. Short, stubby shoots or twigs having a blossom bud at the extremity require no pruning. If the bearing shoots of the year previous still remain numerous some may be shortened closely in. The buds left will furnish shoots for future bearing. Shorten the leading shoots of established trees to two or three buds. Younger trees must have the leaders shortened according to their strength. Weak growths ought to have two-thirds cut away. If of moderate strength half their length may be left, while strong shoots are better with only one-third removed. The pruning induces the formation of side shoots the following year, which should be fruitful. Cut out old or exhausted branches, utilising well placed shoots from the base to take their place, also remove suckers and useless spray. The production of suckers is detrimental to the trees if allowed to remain. By these means the bushes can be kept sturdy and fruitful, because abundance of light and air can reach every part.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest House.*—The weather has been generally favourable to forcing operations, it not having been necessary to have recourse to sharp firing, and the trees in consequence look well, and the crop so far satisfactory. A night temperature of 50° to 55° and 60° to 65° by day artificially, advancing to 70° or 75° from sun heat, especially after closing, will keep the trees in steady progress. Ventilate from 60°, increasing with the sun heat, taking care to avoid cold currents and sudden depressions of temperature, which cripple the foliage, and may cause the fruit to fall. Syringe in the morning and afternoon with water of the temperature of the house, and always sufficiently early to allow the foliage to become dry before night. On dull days omit the afternoon syringing, also the morning when cold and sunless, damping the borders and paths instead. Inside borders must be duly supplied with water, affording liquid manure to weakly trees. Disbud carefully, and in accordance with the growth. When this is strong the whole of the foreright shoots may be taken off at once, and some of the side growths pinched back to form spurs on the extension, but not on branches that will be removed after the fruit is gathered, retaining the best break from the base of the several shoots now bearing, and this must have room for extension with full exposure to light, and a shoot must be reserved on a level with or above the fruit to attract the sap to it, pinching such, when not required for extension, at the third leaf, and to one afterwards as made. Trees that have set heavy crops of fruit should have the least promising removed, especially those badly placed or on the under side of the trellises. To help weakly trees afford top-dressings of fertilisers at intervals of about three weeks, and wash in moderately.

Second Early House.—The trees started at the new year have set the fruit, and syringing will need to be resorted to after this is effected, which will assist them to cast off the remains of the flowers. Syringe, however, cautiously in dull cold weather, as it only weakens the growths, and has a tendency to induce wood formation at the expense of the fruit swelling. A night temperature of 50° is safe in severe weather, and 55° by day, 5° more in mild weather, with 5° to 10° rise from sun heat. Disbud gradually and carefully, practising it when the fruit is fairly swelling, and when begun follow it up a little each day. Where there is a thick set of fruit remove the smallest and worst placed by degrees. Attend to the inside borders as required for watering, avoiding making the soil sodden and sour.

Trees Started Early in February.—In the house started this month the flowers are well advanced, and should be closely examined for aphides. If any are present fumigate with tobacco or vaporise with nicotine essence, having the trees dry, and let it be moderate, or foliage may be crippled and the crop ruined, repeating on two or three consecutive evenings. This will keep the trees free from the pests until the flowering is over. When the anthers show clear of the corollas cease syringing, maintaining a genial condition of the atmosphere by damping the paths and borders in the morning and early afternoon. Turn on the heat early in the morning to secure and maintain a temperature of 50° by day, ventilating from 55°, allowing an advance to 60° or 65° from sun heat with a free circulation of air, employing fire heat only at night to keep the temperature between 40° and 45°. Where there is a great show of blossom remove that on the under side of the shoots. Supply water to the border if it needs moisture, remembering that a very wet soil induces sappy growths.

Houses to Afford Fruit in Late July and Early August.—These should be started early in March, syringing twice a day until the buds show colour, when it must cease. Maintain a temperature of 50° by day, and with ventilation from that point an advance may be made from sun heat to 65°; 40° to 45° is ample at night. If the border is at all dry afford an adequate supply of water, repeating as necessary. Where the

blossom buds are superabundant remove those on the under side of the trellis, drawing the hand the reverse way of the growths. Fumigate if there be the least trace of aphides.

Latest Houses.—These are often unheated and have the roof-lights fixed, both great mistakes, as the buds swell early, and there is little more safety for the blossoms in a cold wet spring than outdoors. With the roof-lights off the buds are quite dormant, and they need not be replaced until the buds commence swelling freely. Under fixed roofs ventilate freely, and where there is heat merely exclude frost. Heat is essential in cold localities, as the blossom is not safe from spring frost, and the fruit does not ripen perfectly if the season be cold and sunless. Besides, a gentle heat during flowering does much towards securing a good set, and in autumn artificial heat is necessary to ripen the fruit and wood. Indeed, the very late varieties cannot be depended on to produce good fruit in late localities without aid in backward seasons, and some of the latest sorts are noble in appearance, good in quality, a gentle heat making great difference in the fruit as regards its thorough ripening. See that the borders are well supplied with moisture. Those having been exposed are thoroughly moistened through to the drainage, and will not require watering until the fruit is advanced in swelling; besides, such trees never cast their buds when they should be developing their flowers.

Vines.—*Early Forced in Pots.*—These require generous treatment, such as surface dressings of rich material, well-decayed manure, and lumpy loam, with a sprinkling bone superphosphate and copious supplies of liquid manure in a tepid state, keeping the plunging material about the roots well moistened with the same to insure the spread of the roots into it and augment the support of the Vines. With the roots coming over the rims and from the bottoms of the pots the Vines make plenty of foliage, which should not be kept too closely pinched, as there is nothing like plenty of feeders to secure well-swelled berries.

Early Houses.—Planted-out Vines started early in December have the Grapes swelling and approaching the stoning period; they will require careful treatment in ventilating, affording a little air at 70°, increasing it with the sun heat, keeping this through the day at 80° to 85°, closing by or before the temperature recedes to 80°, and if it advance to 85° or 90° all the better. Avoid cold draughts; they are prolific of rust and cripple the foliage. Keep inside borders well supplied with water or liquid manure of the same temperature as the mean of the house, and maintain a genial condition of the atmosphere by damping the paths and borders two or three times a day, especially at closing time.

Grapes in Flower.—The temperature ought not to be less than 60° to 65°, with a rise of 10° to 15° by day. Lessen or discontinue the syringing, though moderate humidity is desirable for the benefit of the foliage, preventing condensation of moisture by a little ventilation constantly, taking care not to cause a draught. Shy-setting varieties require careful fertilisation, all varieties well repaying the labour by producing finer bunches of evenly formed berries. Afford Muscats in bloom a night temperature of 65° to 70°, and 10° to 15° rise by day; if the bunches are numerous a better set will be secured by the removal of the surplus bunches before they flower. Duplicate bunches only take support from those left for the crop.

Thinning Grapes.—Keep this operation well in hand, thinning Black Hamburgs and other free-setting varieties as soon as possible after flowering, but the shy setting Muscats and others should be left until the properly fertilised berries can be distinguished by their taking the lead in swelling. Thinning requires the exercise of a little judgment, taking the character of the kind and capabilities of the Vines into consideration. Sufficient berries should be taken out to allow those left to attain their full size without wedging or crushing, retaining sufficient to prevent the bunches falling out of shape when cut and laid upon the dish.

Succession Houses.—Attend to disbudding as soon as the best breaks can be discerned, proceeding gradually. Stopping may take place one, two, three, or four joints beyond the show of fruit as the space admits, but the more leaves beyond the fruit having exposure to light the more certain is it of being well supported. If the space is limited stop at the second joint, or even at one beyond the bunch; but if the room admits stop the growths at the third or fourth joint beyond the bunch, and then allow the laterals to extend until the available space is covered with an even spread of leaves, then keep closely stopped. Tie the growths down before they touch the glass, bringing them down carefully, as the growths of vigorous Vines are liable to snap. Allow plenty of room in the ligatures for the swelling of the shoots. When the bunches show increase the temperature to 55° to 60° at night, 65° by day artificially, 70° to 75° from sun heat, and an increase of 5° to 10° from that source after closing.

Late Houses.—If late Vines are not yet cleared of Grapes it should be done at once, pruning the Vines and dressing the cuts with best French polish or styptic, shellac dissolved in alcohol being excellent for this purpose; and cleanse the house and Vines, removing the loose surface soil from the border, supplying fresh loam, keeping the house as cool as possible. Examine Grapes in rooms, removing any decayed or mouldy berries, as one soon spoils a whole bunch. Maintain the temperature at 40° to 45°, and the room being dry the Grapes will keep sound and give little trouble. Muscats, Lady Downe's, and other late varieties, from which the Grapes were cut about the new year, may now be encouraged to grow, as the Vines starting early in March have a chance to mature their Grapes thoroughly before the cold and sunless

autumn weather, and the fruit keeps much better ripened not later than early in September, late ripened fruit being in every way less desirable. The inside borders must be brought into a thoroughly moist state by the application of water at a temperature of 80°, following with rather thick but tepid liquid manure when the Vines are weak or been heavily cropped. The outside borders will only need the protection of a little rather short litter to prevent chill from frost, cold rains, or snow. If the Vines in any case are planted outside, their stems must be well wrapped in haybands, otherwise the Vines will suffer in periods of sharp frosts.

THE FLOWER GARDEN.

Erythrina.—A bed wholly planted with these in variety present when in flower a unique appearance, and they are well adapted, filling isolated beds in pleasure ground or for using with sub-tropical plants. In some positions the old stools may be wintered in the open, a covering of leaf soil, ashes, or cocoa-nut fibre refuse being all the protection needed. As a rule the safest plan is to lift them and store on a dry floor in a cool house. If started in heat they will form numerous shoots which, when about 3 inches long, may be taken off with a heel attached and placed singly in small pots filled with sandy, peaty soil. Plunge in a brisk bottom heat, cover with hand-glasses, and dry the latter daily to prevent damp attacking the cuttings. *E. Crista-Galli* is the most commonly grown, and if seed of this can be procured a stock of plants can soon be raised. It must be first soaked similarly to Canna and Acacia seed, and the subsequent treatment may be identical.

Eucalyptus globulus.—Though not generally hardy, a few young plants are of service for mixed beds and partially filled shrubberies, the glaucous foliage contrasting well with darker shades of colour. They can only be raised from seeds, and these should be sown now thinly in pans of sandy peaty soil, and duly plunged in a brisk bottom heat, a square of glass placed over the pans hastening germination. The seedlings may first be pricked out thinly in pans, or placed singly in small pots, being eventually shifted into 5-inch or rather larger pots. They may be grown to a good size prior to planting out, but the plants are not so effective in the first season as they are when kept in pots and placed out early in the following May.

Ficus elastica.—Where sub-tropical bedding is carried out on either a large or small scale the "Indiarubber Plant" ought to be freely used either in mixed beds or grouped thinly, having a showy groundwork to display them to the best advantage. Old conservatory plants introduced into heat will soon afford a number of cuttings. Every leaf with a short length of wood attached will root, but the progress of these plants is slow, and side shoots are preferable. First take off the top of the main stem and strong branches, preserving three nearly or quite fully developed leaves, and cut to a joint below these. Dry the wounds with the aid of dry silver sand, and insert firmly in the centre of small pots filled with light sandy soil. Fasten the leaves uprightly with the aid of a light stake and raffia, plunge the pots in a brisk bottom heat, cover with a bell-glass, and avoid overwatering. The side shoots when about 5 inches long to be taken off with a short slice of old wood attached and treated similarly to the tops. All ought to be kept growing in gentle heat and given one shift, being eventually hardened prior to planting or plunging in the open in June.

Hollyhocks.—A packet of seed obtained from a reliable source contains a good per-centage of showy varieties, but those who wish to flower them this year must lose no time in procuring and sowing it in a pan of fine sandy soil. If this is set on or plunged in a gentle hotbed and covered with a square of glass the seedlings will appear in a fortnight, and these being gradually exposed to more light and air may first be pricked off carefully into other pans of soil and kept growing in gentle heat. Before they crowd each other they ought to be placed singly in small pots and gradually hardened. While in a cool pit or frame the strongest ought to be given a shift into 5-inch pots, and it is these which under further liberal treatment will form fairly strong flower spikes. All should be planted out in May, or before they become badly root-bound. Even the smaller plants will frequently flower in a favourable season. Seedlings are less liable to disease than are those obtained by rooting side shoots much as Dahlias are increased.

Narcissi.—These may safely be lifted, divided, and replanted at the present time, provided the weather is sufficiently mild. If this is done carefully, the tender roots not being much denuded of soil, and not injured by cold winds, the removal will not interfere with the flowering either in this or the next season, whereas bulbs transplanted in a dry state frequently fail to flower in the second spring following. Clumps of the common Daffodils lifted in the woods and planted near the stems of Apple trees are greatly improved by the change, and fine masses of flower annually result.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, The Royal Gardeners' Orphan Fund, Chiswick, W.

THE BEE-KEEPER.

DOUBLING HIVES.

If "G. H." will give the doubling system a fair trial in comparison with others he will have no cause to be disappointed at the result. At present he does not quite grasp the idea, and imagines more hives will be necessary than when larger hives are used, and nucleus hives are required for queen rearing, whereas in practice it is quite the reverse. I will endeavour to make the matter plainer.

It is a fact well known to all bee-keepers who have studied the question that bees are not at all particular as to how and where they store a surplus if extra space is provided for them when they require it. It is also immaterial to them whether the space is narrow or wide, but if left to themselves I am inclined to think they would choose a small insignificant place for their dwelling, quite out of keeping with our modern ideas of bee-keeping.

We must not forget that it is quite possible for "G. H." or anyone else who understands the management of bees to obtain as good a sample of honey from an ordinary box or zinc skep, if placed on the top of a strong colony of bees, as from the most elaborate hive. It would, however, not be in as convenient a form for handling as when obtained in either deep or shallow frames. For this reason it is advisable to endeavour so far as it is possible to have the bees under perfect control and the necessary appliances conveniently situated.

On referring to my notes, extending over a series of years, as to the exact time the majority of my hives have been doubled, or more properly speaking, placing a box, which may be termed a super, on my hives, has been more often done during the last week in May than at any other time. If the bees have wintered well, and the spring has been genial, many of the hives will at that time be crowded with bees, and if the quilt is lifted off they will boil over the sides of the hive in thousands.

A stock of this description will not require any assistance from other colonies, as there will be quite enough brood and bees to fill the double hive when the honey flow comes some three or four weeks later. Four or five frames of brood are then taken from the brood nest and placed in the top storey, being replaced with empty combs. The queen being provided with extra room will fill the frames from top to bottom with brood, and there being a sheet of excluder zinc placed between the brood nest and super, all surplus will be carried to the top, and the vacant space, not being taken up with the frames containing brood, may be filled with frames of tough combs that will not break down in the extractor.

If many stocks are kept there will be a great difference in their strength at that season. But as it is necessary to have all hives intended for extracting purposes crowded with bees when the honey flow comes, it is an advantage to obtain bees and brood from other hives. These weakened stocks are then used for queen rearing, and as early queens are invariably the best, if worked on this system they are fertilised and laying before the end of June. Two or more queens may be raised in each hive. This is done by placing a division board across the middle of each hive. I can confidently recommend this plan to gardeners whose employers may object to having too many hives on their property. If there is a surplus to be obtained by any means, depend upon it stocks treated on rational lines as above will obtain a share.

LARGE HIVES.

These I have used holding from twelve to twenty and even more frames (standard size). Someone may say "What is the standard size?" It is 14 inches by 8½ inches (outside measure). These, however, require somewhat different management from smaller hives.

The ordinary hive holding ten frames is not contracted in the winter, but one having space for twenty frames is better if reduced to half that size for wintering purposes. This is done by placing the division board between the frames, which may be left to the back of dummy, often keeping in better condition and free from moths than when packed away in boxes. As the brood nest expands in the spring the division board may be moved back and a fresh comb brought forward every two or three days as required. Hives holding fifteen frames are quite large enough for all practical purposes, and similar treatment is required whether they are intended for sections or extracting.

If the former is desired, as soon as the hive is crowded with bees, and honey is coming in somewhat freely, place a crate of sections on the top, covering them up warmly. As soon as they are three parts filled place another crate of empty sections under

them, and manipulate them as advised for other hives. For run or extracted honey use shallow frames 14 inches by 5½ inches. If the colony is a strong one and the weather favourable the bees will commence to work in them at once. There is, however, a danger of them swarming if only a single crate of shallow frames is used. It is therefore advisable to place another crate of shallow frames under the former before they become sealed over. As soon as this has taken place the honey may be extracted and the empty frames placed under the others to be again filled. But for reasons previously given I prefer a smaller hive.—AN ENGLISH BEE-KEEPER.

MICE IN BEE HIVES.

LAST season I had a large number of bees and hives to look after from various causes, the chief one illness of the owner, who had no less than six apiaries in different localities. In each case I found mice had seriously interfered with if not destroyed colonies. In one case of a bar-frame hive last autumn, which had not been overhauled except to put on a crate of sections, I found at least a quarter peck of Plum stones, the kernels of which the mice had eaten. These stones were wedged and propolised by the bees, so that I had to lift several frames together bodily to do anything with them. The top portions of the frames were fairly filled with honey.

I attributed the cause of these attacks chiefly to the fact that few of the hives were on legs, and many simply standing on a brick at each corner of the hive, and being practically on the ground, the mice thus gaining easy access and gnawing a hole at a corner of the entrance. In one case, on taking off a cover, I succeeded in killing five mice with my hand. But mice should be trapped in the neighbourhood of hives—in the hedges if near hives. They are the long-tailed field mice which do the damage, and also spoil rows of Peas and Beans.—J. HAM, *The Wren's Nest, Astwood Bank.*

TRADE CATALOGUES RECEIVED.

J. Laing & Sons, Forest Hill.—*Clivias.*

Letellier & Son, Caen, France.—*Gooseberries.*

Surrey Seed Co., Redhill.—*Seeds.*



* * All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Book on Landscape Gardening for Bothy (G. W. B. G.)—Kemp's "How to Lay Out a Garden" is the most practical work on the subject, but out of print, though sometimes procurable at secondhand booksellers. Milner's "Landscape Gardening" is a more elaborate and expensive work, with excellent engravings, but we do not know the price or publisher. What you require is a less pretentious work than either, of which we do not know, nor is any likely to be issued, as the sale would be very questionable as regards meeting the cost of production.

Melons in Frames (One Desirous to Know).—The treatment of Melons is very similar to that practised with Cucumbers. The soil, however, should be rather heavier in character, and the growths kept somewhat thinner. When the laterals appear from the principal growths select a limited number for extending. They show fruit at the second or third joint. As many of the pistillate flowers as possible ought to be fertilised at one time. Of the fruits which swell select those equal in size. Limit the number on each plant to four or six. In frame culture means must be taken to supply plenty of heat. Avoid watering too closely to the main stem. Should canker appear rub in quicklime. Maintain the soil moderately moist, and the leaves fully exposed to light. Stop the bearing laterals two joints beyond the fruit when the latter is set. The night temperature should be 70°.

Peaches and Nectarines in Pots (Anxious).—These fruits cultivated in pots in a cool greenhouse, require no syringing previous to or during the flowering stage. The atmosphere of the house should be kept dry and free ventilation afforded, especially in the middle of the day. At that period the pollen, when the flowers are fully open, will be perfectly dry, and distribute itself freely when the trees are lightly shaken. This usually insures fertilization; but a more certain method is to gather perfectly dry pollen from the anthers of fully expanded flowers with a camel-hair brush, and apply to the stigmas of the flowers. A regular moist condition of the roots must be maintained from the time the plants are housed. Trees in pots are placed outside after the fruit has ripened.

Size of Boxes for Cut Flowers (H. W.)—We have sent cut flowers over 300 miles in a varied assortment of boxes of both tin and wood, and have found nothing better than deal ones about 18 inches long, 12 inches wide, and 2½ deep, all inside measure. We used these singly or as trays in a box of two or three tiers, one fitting closely on the other and the lid tight upon the uppermost. The thing is to pack so that the flowers do not move, hence we had elastic passed through holes in the box bottoms so as to form loops inside crosswise, and the stalks of the flowers being placed in them they could not move in transit. This gives a little extra trouble both in packing and unpacking, but the flowers come out as fresh as when sent off, and were satisfactory to everyone concerned.

Lime Mixed with Soil for Cucumbers (J. B.)—We are unable to account for the lime killing the plants unless it was of a very caustic and deleterious nature—a poison. It seems strange that the compost containing the largest amount of lime should only remain four days, the medium ten days, and the smallest twelve days before use. Why there should be such difference passes our understanding, and if that were recommended by the learned professor named we do not wonder at your having a dread of "supposed" remedies. No such advice has been given in the *Journal of Horticulture*. Our turf for Cucumbers is cut in the late summer and the lime mixed with it in stacking. We have found the practice excellent in reducing the herbage and destroying the larvæ of any pests it contained. We have never had any eelworm in either Cucumbers or Tomatoes grown in it.

Black Hamburgh Grapes Breaking Stronger at Top of Rods than Bottom (A. W. E. E.)—The Vines ought to have been depressed before the buds at the lower part of the rods or canes commenced swelling in each year, the upper part being brought down lower than the bottom of the rafters or base of the cane or rod, and so have remained until the buds on the lower part of the Vines had pushed, securing the canes or rods in position as soon as that was effected, and before the shoots had grown in a wrong direction. We have frequently depressed young canes to an angle of 45° in order to make the buds break strongly at the base, and have raised them a little at a time so as to get an even break throughout the length of it. This is more simple to do than to explain, and is more a matter of judgment than anything else, which you will no doubt exercise according to circumstances.

Pear Tree Infested with Scale (F. M. M.)—The potash and soda wash to which you allude is made by dissolving 1 oz. each of caustic soda and commercial potash (pearlash) in hot water, say a quart, and when dissolved adding hot water to make 1 gallon of solution. This, when of a temperature of 130°, is to be applied with a half-worn painter's sash tool, properly cleaned, and in such a manner as to wet every part of the tree, not using it carelessly so as to run down and cause injury to the roots. The solution must be applied whilst the buds are quite dormant, and to be effectual the hack as well as the front of the branches should be reached. For spraying the solution is made stronger; ½ lb. each caustic soda and commercial potash to 6 gallons of water for Apples, Plums, and Pears, using at a temperature of 130°; and for other trees, such as Apricots, diluting to 8 gallons. In treating wall trees it is difficult to reach the back of the branches without unloosing them and applying with a brush, hence the slightly modified formula.

Keeping Carrots Through the Winter (Nemo).—The best means of keeping Carrots is to pack them in sand in an outhouse, so that each root will be separate and not form large piles, 18 inches to 2 feet being sufficiently high, the sand being only moderately moist, and covering used during frosty weather. This appears to be the practice you have followed, and have suffered from to the extent of losing half of the roots. We have found Carrots keep well in a shed or outhouse, with only sufficient dry straw on them to exclude frost. As for the other plan—namely, pitting them in the open, a large farmer growing vegetables for market and supplying them direct to the consumers adopts that system, the pits being narrow (about 2½ feet) and low (about 1 foot 9 inches) a dry site being chosen, the usual covering of dry straw employed, and then sufficient earth placed on so as to exclude frost. The plan answers well in most seasons—not always, for unless the Carrots are matured before lifting, this being done in a dry time without bruising or injuring the flesh, and the covering but light at first, so that sweating cannot take place, or if taking place allow the moisture to pass off, the Carrots will not keep for any length of time. Keeping, therefore, depends on thorough maturity, cleanness of roots, freedom from damage, with moderate dryness and safety from frost. Some gardeners leave Carrots in the ground, covering the surface thickly with leaves, and claim for the roots better quality than those which are stored.

Tomatoes for Outdoor and Indoor (Cambs).—The varieties you name, Earliest of All and Perfection, are excellent and when well grown produce abundance of fruit, the latter being found among the majority of prizewinning dishes at exhibitions. Everything, however, depends upon the cultivation, though, of course, this is no use without suitable varieties, which are mostly selections, and on that account improvements on the older and less carefully selected varieties.

Cheapest and Best Coping for a Vinery Wall (T. W. M.).—The cheapest and the best coping we have used for garden walls and horticultural structures was Portland cement—one part to two parts sharp gravel screening, small gravel, and sand, forming into a mortar-like mass, then placing in the trough. What you mean by a coping half an inch less than the wall plate we do not understand, as a coping means covering a wall and projecting over it on both sides. But if a capping is meant, we may say that concrete—if by that a cement one is intended—will not injure but preserve woodwork, if it fits close and excludes wet.

Pruning Tea Roses (Rosa).—Recently planted Roses require to be somewhat more closely pruned than established plants, cutting the weak shoots to one or two buds, medium to three or four, and strong to five or six. Very weakly and ill-placed shoots are best cut out altogether, so as to give advantage to the best situated and strongest. The pruning is to some extent a matter of judgment, and must be exercised according to the condition of the plants, aiming at vigorous growth without over-luxuriance, so as to secure fine blooms and make provision for their production. Outdoors the Roses should not be pruned until the end of March, no harm being done if they make a little growth, so long as the basal buds are not started. This will prevent injury from late spring frosts, and give finer Roses.

Names of Fruits.—Notice.—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. They should be sent on the first indication of change towards ripening. Dessert Pears cannot be named in a hard green state. (L. W. C.).—Your Apples are probably local seedlings that never had recognised names; all are inferior in quality. The Pear is not in a fit state for naming. (J. H. O.).—1, Bramley's Seedling; 2, Warner's King; 3, Golden Winter Nonesuch. (C. R.).—1, Easter Beurré; 2, undeterminable; 3, Cox's Orange Pippin; 4, King of the Pippins; 5, unknown; 6, Wellington.

COVENT GARDEN MARKET.—FEBRUARY 24TH.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	1	3 to 2	6	Lemons, case	11 6 to 14 0
Filberts and Obs., per 100 lb.	0	0	0	Plums, $\frac{1}{2}$ sieve	0 0 0 0
Grapes, per lb.	1	3	2 3	St. Michael Pines, each	3 0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100	0	0 to 0	0	Mustard and Cress, punnet	0 2 to 0 4
Beans, $\frac{1}{2}$ sieve	0	0	0	Onions, bushel	3 8 4 0
Beet, Red, dozen	1	0	0 0	Parsley, dozen bunches	2 0 2 0
Carrots, bunch	0	3	0 4	Parsnips, dozen	1 0 0 0
Cauliflowers, dozen	2	0	3 0	Potatoes, per cwt.	2 0 4 9
Celery, bundle	1	0	0 0	Salsafy, bundle	1 0 1 0
Coleworts, dozen bunches	2	0	4 0	Seakale, per basket	1 8 1 0
Onionburs	0	4	0 8	Scorzonera, bundle	1 6 0 0
Endive, dozen	1	3	1 6	Shallots, per lb.	0 3 0 0
Herbs, bunch	0	3	0 0	Spinach, pad	0 0 4 0
Leeks, bunch	0	2	0 0	Sprouts, half sieve	1 6 1 9
Lettuce, dozen	1	3	0 0	Tomatoes, per lb.	0 4 0 0
Mushrooms, per lb.	0	6	0 8	Turnips, bunch	0 3 0 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (various) per dozen	6	0 to 36	0	Ficus elastica, each	1 0 to 7 0
Aspidistra, dozen	18	0	36 0	Foliage plants, var. each	1 0 5 0
Aspidistra, specimen plant	5	0	10 8	Genista, per dozen	9 0 12 0
Azalea, per dozen	24	0	36 0	Hyacinths large, per dozen	6 0 12 0
Cinerarias, per dozen	8	0	10 0	Lily of the Valley, 12 pots	9 0 12 0
Cyclamen, per dozen	9	0	18 0	" " in boxes	4 0 6 0
Daffodils, per dozen	6	0	10 0	Lycopodiums, dozen	3 0 6 0
Dracæna, various, dozen	12	0	30 0	Marguerite Daisy, dozen ..	9 0 12 0
Dracæna viridis, dozen	9	0	18 0	Myrtles, dozen	6 0 9 0
Erica, per dozen	9	0	12 0	Palms, in var. each	1 0 15 0
" hyemalis, per dozen	10	0	15 0	" (specimens)	21 0 63 0
Euonymus, var., dozen	6	0	18 0	Poinsettia, per dozen	9 0 12 0
Evergreens, in var., dozen	4	0	18 0	Primula sinensis, per dozen	4 0 6 0
Ferns in variety, dozen	4	0	18 0	Tulips, dozen pots	6 0 9 0
" (small) per hundred	4	0	8 0	" in boxes, per dozen	0 8 1 6

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches ..	2	0 to 4	0	Mignonette, dozen bunches	3 0 to 6 0
Arum Lilies, 12 blooms ..	2	0	4 0	Mimosa (French) per bunch ..	1 0 1 6
Asparagus Fern, per bunch	2	0	3 6	Narcisse, White (French), dozen bunches ..	3 6 4 6
Azalea, per dozen sprays ..	0	6	1 0	Narvoiss, Yellow (French), dozen bunches ..	1 0 3 0
Bouvardias, bunch	0	6	0 9	Orchids, various, per dozen blooms ..	1 6 12 6
Carnations, 12 blooms ..	1	6	3 0	Pelargoniums, 12 bunches	6 0 9 0
Christmas Roses, 12 blooms	1	0	1 6	Pyrethrum, dozen bunches	1 6 3 0
Daffodils, double, dozen bunches ..	5	0	6 0	Roses (indoor), dozen ..	1 0 2 0
Daffodils, single, dozen bunches ..	5	0	9 0	" Tea, white, dozen ..	1 0 2 6
Eucharis, dozen	3	6	4 0	" Yellow, dozen (Niels)	6 0 9 0
Gardenias, dozen	4	0	6 0	" Red, dozen blooms ..	6 0 10 0
Geranium, scarlet, doz. bunches ..	6	0	9 0	" Safrano (English), dozen ..	1 0 2 0
Hyacinths (Roman), 12 sprays, and per bunch ..	0	6	0 9	" Pink, per dozen ..	3 0 6 0
Lilac, White (French), per bunch ..	3	0	5 0	Smilax, per bunch ..	4 0 6 0
Lilium, longiflorum, 12 blooms ..	6	0	8 0	Snowdrops, dozen bunches	1 0 2 0
Lily of the Valley, 12 sprays, per bunch ..	0	6	1 0	Tuberose, 12 blooms ..	1 0 1 6
Marguerites, 12 bunches ..	2	0	3 0	Tulips, dozen blooms ..	0 6 1 0
Maidenhair Fern, per dozen bunches ..	6	0	9 0	Violet Parme, per bunch ..	2 0 3 6
				" per doz. bunches ..	1 6 2 0
				" (French), per dozen bunches ..	1 0 2 0



LARGE v. SMALL FARMS.

PARTISANS are often bitter. Our own ideas are so large as to entirely obscure our mental vision. We have no room to see the good points in the cause of others, and we do not care to hear views advocated at variance with our own.

It requires a broad mind to impartially consider an opponent's proposition. That this is so is a pity, but, alas! it is human nature, and we are not quite sure of a remedy. Education will not do it, for it is often that we find educated people with a very strong bias. The only remedy seems to be beyond book learning proper—the mixing with and studying mankind at large. A cosmopolitan is generally a man of broad views. He sees life from many standpoints, and if an honest man is only too glad to admit the wisdom and cleverness of others.

There has been much written and said on the subject of our paper ("Large v. Small Farms"). Both have their advantages, both their disadvantages; but we doubt whether a panacea for agricultural depression is to be found by cutting up large farms into small ones. First there is the primary cost. Take a large holding; we find a good house and range of suitable buildings in the centre. The house cannot well be sub-divided, and unless a tenant can be found out of agriculture the house will probably be long on hand, and no property depreciates so quickly as empty houses.

Of course in some neighbourhoods such a place will let quickly, say to hunting or shooting men, or to retired officers who prefer the quiet of country life; but these houses must be fairly near railway and sport, and a farmhouse, however good, in a remote region is practically unlettable. Then this necessitates the erection of smaller dwellings with the proper out-buildings, and the estimate of such buildings on a 20 acre plot cost £20 or £25 per acre as against £8 per acre on the well-arranged large holding. Capital has to be found for this, and to meet this outlay higher rent must naturally be demanded.

So many people fail to grasp the fact that these small holdings must, to make them a paying concern for the landlord, be let at higher rent than one large occupation. The division of a property into small lots increases the cost of management, but there are good people quite blind to this. They have never seen the inside of an estate office, nor have they any idea of the machinery that keeps all in order.

Of late years we have had to complain of severe agricultural depression, a depression arising from two causes—badness of the

seasons and low prices. Now the seasons we cannot alter, all we can do is to make the best of whatever weather comes, and strive by extra labour to meet the exigencies of the case—take advantage of any temporary change, and never waste a minute.

As to prices, well this is a wide subject, and many "savants" shake their heads, but we are of opinion there is a little hope of better things, much rests with ourselves. Can we lessen the cost of production? The easiest way to do that is to have a clever capable man on a large holding, with a well equipped complement of labour-saving appliances.

A mixed occupation seems to afford a partial solution, and on that class and on tillage farms more stock can be raised than on the very best purely grass farms, and stock is now our sheet anchor. A large occupier has the best means of attracting the best class of labourers—a good wage, comfortable house and garden, and in most cases labour is an inheritance. We hear of little change, men are kept on from year to year, the masters know the value of faithful service, and the men the value of regular well-paid labour, to say nothing of the kindly feeling existing between the big house and the small cottage. We have men in our employ whose term of service exceeds twenty years, and we hope we are far from the end yet. Men of this class are great factors in making a farm profitable.

Now another item. Stock must be well fed, and the "menu" is a long one. An engine for grinding, pulping, chaff-cutting, water pumping, soon pays for itself. On some farms a portable threshing engine is hired; with it should be used a chaff-cutter, and as the straw is threshed it should be cut and stored. Two extra hands will do this well, and save much time and further expenditure.

As long as cereals are cheap we are greatly in favour of grinding home produce. Straw, too, may largely take the place of hay; but to obtain the greatest nutritive value this straw should be cut before being dead ripe; and as peat moss is so generally used as litter, and with, as our cow man says, the best results, there should be plenty of straw for stock. The large farmer, too, has a great pull over the small one in another respect—*i.e.*, the closer supervision of labour. It pays to have good foremen; a master cannot be everywhere, and working hours are short.

The large farmer still needs much in the way of better protection for his stock, but this is being remedied daily. Take a small holder. His capital does not allow him to purchase the desirable amounts of feeding stuffs and tillages, and often, poor fellow, through very ignorance he gets robbed buying the cheaper article, which a little education would tell him was fearfully dear in the long run. He knows nothing of buying on analysis, and he is a ready prey to the first unscrupulous "muck" merchant he meets.

As to labour, not wanting it all the year round, he has to take men who delight in "catch work," and are not very fond of that. He has no labour-saving appliances; he works day and night to achieve what his richer neighbour can accomplish in half the time; his head of stock, too, is small, and a loss among it is severely felt. We were very sorry for one of these small men the other day, who told us all his corn had been spoilt by the wet harvest (he was on a Carr farm—good land, but backward), half his lambs had died, in a great measure from eating unnutritious grassy food, and his stock losses mounted up to £30 for about four months.

This was a man who had been a capital foreman—father before him, so valued by his late master that he had let him his little holding for life on most advantageous terms.

Where a small holding is most profitable it must be within easy reach of a good market, and the wife must be even a better manager in her department and cleverer than her husband; but at best, under most favourable conditions, the work is arduous, the pay poor, and with all the good will in the world the best is not made of the land.

WORK ON THE HOME FARM.

The weather has become mild and spring-like, the blackbirds are singing, and rooks are hanging around their old quarters in a way suggestive of nest-building at an early date. To farmers short of winter keep, which list practically includes a very great majority all over the country, the prospect of a mild and forward spring is most welcome. All that is now wanted is a cessation of the wet weather. Wheats have been almost living in water ever since they were sown. Such conditions are never favourable to the production of a robust plant, and on wet lands the plants look very wiry. On medium and dry soils, however, Wheat is looking well, and quite forward enough for the time of year. As soon as the land is dry enough it should be rolled, and as soon as the least sign of weeds is noticed a light harrowing must be given. Weeds are easily killed when small, but if they once get well established nothing but a hoe will really eradicate them. This is especially the case with the Poppy, a great pest on sandy soils, but easily killed before it attains its third leaf.

We see a few lambs about, but lambing is not general enough to give a report upon. Sheep have done fairly well on Turnips considering the very wet lair they have had. Many hoggs (hoggets) are being marketed now in the wool, which, if Turnips had been more plentiful, would have been clipped in April. Will this have much effect on the trade later on? It would twenty years ago; but now, we suppose, the foreigner will level up the supply.

A few more fine days and drilling of spring corn will become general on all but the lightest soils. Oats will soon go in well enough, but a warm and good seed bed is necessary for Barley if it is to do well. We should advise getting Oats in first, and letting the Barley wait for March winds and a more powerful sunshine. "A peck of March dust is worth a king's ransom," is an old saying among northern farmers; and it is no great exaggeration if the value of a dry seed bed for Barley is fully taken into account.

Work at the fences must be completed now as rapidly as possible, for the sap will soon begin to flow, and hedges cut too late are much weakened by undue bleeding.

We are killing our last pigs for curing. The first week in March is the latest date at which it is safe to cure anything but very small weights.

OUR LETTER BOX.

Liquid Manure for Grass Land (*Subscriber*).—The drainings of piggeries and cow sheds are excellent for grass land, but are very variable in value, as sometimes they are little better than water and at other times almost entirely urine. Of course, there is a difference in the mode of collecting, for when the tank can receive nothing but the neat drainings it will not vary so much as when washing or rain water also run into the tank. These are matters upon which we can form no opinion; therefore judgment must be exercised, for neat drainings will burn the grass unless put on when the ground is moist and during the prevalence of showery weather. In the case of such drainings and in ordinary weather we have found it necessary to dilute with two parts water to prevent browning the grass in summer time. In the winter time we used it neat, applying whenever the weather was mild, for it is no use putting it on when the ground is frozen, and the whole ground given a dressing in due course, or as far as it would go for the hay crop or grazing purposes before April. After that time it can only be used on grazing land, always in showery weather, or with an early prospect of rain. After hay cutting we have used it with considerable advantage, cows always preferring sweet to sour grass, and thrive better in every way.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1897. February.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 14	29.992	47.5	46.1	W.	41.7	53.3	40.8	78.6	47.4	
Monday .. 15	30.307	45.0	44.6	N.	42.3	46.1	44.1	48.1	35.9	
Tuesday .. 16	30.627	39.3	37.8	N.E.	41.1	44.7	36.9	48.9	28.6	
Wednesday 17	30.555	35.7	35.2	N.W.	39.8	47.5	32.1	62.9	26.9	
Thursday .. 18	30.347	39.3	38.6	S.W.	38.1	53.3	29.4	82.1	23.2	
Friday .. 19	30.295	46.4	45.9	S.W.	39.8	50.1	39.3	51.9	33.3	
Saturday .. 20	30.187	47.2	46.9	S.W.	42.0	53.7	46.2	68.0	44.3	
	30.330	42.9	42.2		40.7	49.8	38.4	62.9	33.2	

REMARKS.

- 14th.—Overcast early, fine and generally sunny from 11 A.M. to 3 P.M., and cloudy after.
 15th.—Overcast, with occasional drizzle.
 16th.—High smoke fog all morning, clearing about noon; fair afternoon. Lunar halo at night.
 17th.—Bright sun all day, but slight smoke fog till about 11 A.M.; fine night.
 18th.—Bright sunshine throughout.
 19th.—Dull, drizzly and rainy all day.
 20th.—Continuous rain or drizzle till 11 A.M.; sunny in afternoon. Solar halo at 3.30 P.M.

A fine mild week, but with grass frosts on three mornings.—G. J. SYMONS.

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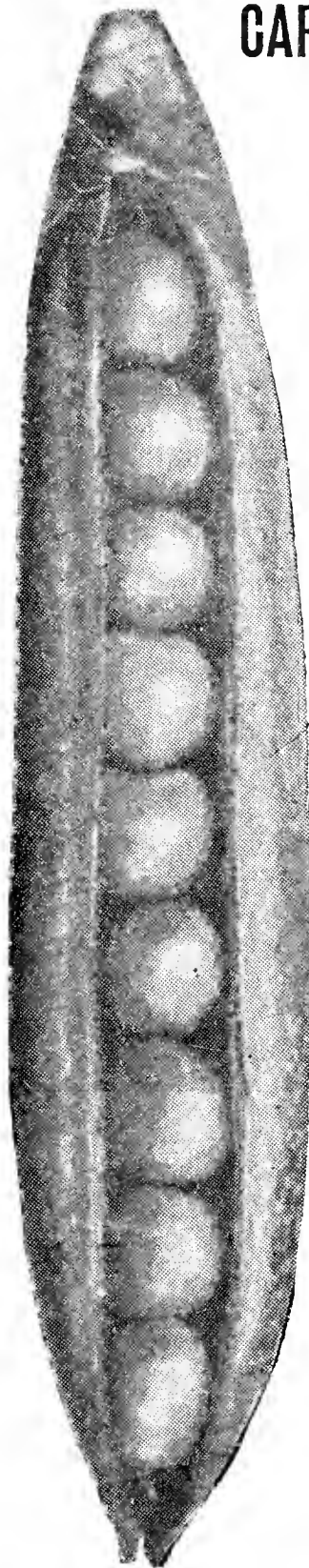
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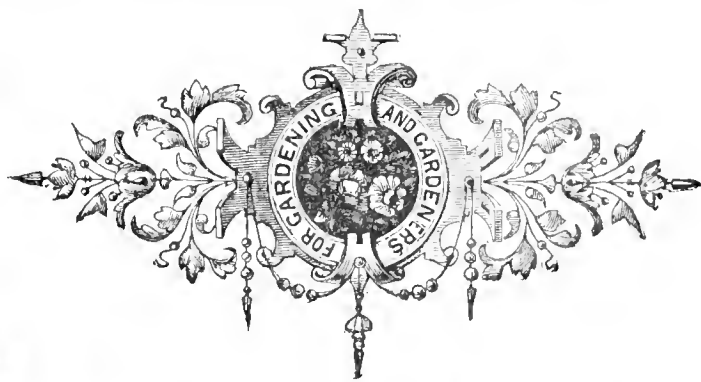
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Journal of Horticulture.

THURSDAY, MARCH 4, 1897.

THE SIMPLICITIES OF PRUNING.

IT has been my fortune to assist in training many youths in the art of gardening, and it has often seemed to me that the two most difficult lessons that beginners have to learn is to water plants in pots properly and to prune a tree rationally. Perhaps the latter task is the more difficult of the two, and it is surprising how completely lost young gardeners often are when set to prune a most ordinary tree or bush if there is no one at hand to guide them. This is mainly due to a failure to grasp the first principles upon which all good pruning must be founded, yet the difficulties are easily surmounted with ordinary care, attention, and intelligence.

Though somewhat late now for pruning hardy fruit trees in most districts, probably there are some not yet completed, and a few notes on what may be termed the elements of the art may render some matters clearer to our younger brethren. First it should be remembered what the object of the pruner is in subjecting a tree to such artificial treatment as removing a portion of its branches. The special desire is, of course, to promote fruitfulness, and this can best be accomplished by encouraging a balance of roots and stem growth. So long as there is an undue excess or deficiency in the vigour of either of these organs so long will there be unsatisfactory fruit crops or none at all. The branches are more completely under our control than the roots, although it is possible to bring these within our influence also, so we will first refer to branch pruning, as that is an operation that concerns the majority.

Before commencing the actual work it is necessary to be furnished with the requisite tools, which means sharp knives for all trees, a narrow saw in addition for large trees, and some also use and advocate the employment of the continental pruning scissors or shears—*sécateurs*. I have, however, tried various forms of the latter instruments, and have not found any design perfectly satisfactory. For small soft growths they will answer fairly well if kept properly sharpened and tightened at the screw, but when employed for cutting larger hard wood they give bad results even in

experienced hands. The bark and younger wood are crushed or bruised in a manner that greatly delays, if it does not effectually prevent the healing process, without which pruning is the source of many tree diseases or troubles. I therefore rely upon the knives for all hardwood pruning, and two essential points with regard to them is that a really good steel instrument be chosen to start with, and then that this be kept properly sharpened. It is a common mistake to put too short an edge on pruning knives when sharpening them, with the result that it is quickly worn off, very frequent sharpening being needed, or damage is soon done. The knife blade is held at too great an angle with the stone; it should be nearly level with its surface, as a longer, smoother edge is thus obtained, and the knife wears better and more evenly. An example of what is meant is afforded by scythe sharpening, though this is an operation that few young gardeners have to perform nowadays, but at one time no man had completed his initiatory experience until he could sharpen and use a scythe in a masterly fashion. A short edge on the blade is useless, and every good workman speedily learned the necessity of holding the stone at a very slight angle to the blade, so as to secure as long an edge as possible.

A good and sharp knife being therefore indispensable in pruning, the next matter is to use it in such a manner that a short clean cut may be produced, and not a long jagged wound. I have found it needful to repeatedly impress upon the minds of learners that the shorter and cleaner the cut the quicker and more certain is the healing, but there seems to be a natural tendency to make a long upward cut, and finish off with a ragged piece of wood or bark at the top. The due control of the knife in the hand is a lesson that must be learned by observation and experience; but with all smaller wood if the thumb of the right hand is placed immediately below the point where the shoot is to be severed, the knife can be drawn upwards without damage to the tree or the operator. Even in the case of larger branches it is preferable, wherever it is possible, to cut towards oneself rather than away, as there is less danger of the knife slipping into other branches, a prolific source of injury in the hands of the inexperienced and careless.

Where a branch or shoot is to be removed, it should be cut just above and towards a bud, but if the cut is started low too much wood is removed from the back of the bud, with the result that it often fails to start into growth, or does so in a very weakly manner, a lower bud probably taking the lead, which may be the means of throwing the tree out of shape. On the other hand, when the cut is made above the bud, and much wood is left, this frequently dies and leaves a "snag" that has to be ultimately cut away, and provides in the meantime a nidus for the eggs of insects. What is required is a short sloping cut from behind the bud forwards, leaving just sufficient wood to protect the bud from injury, an eighth of an inch being sufficient, and if closer cutting is attempted it is not uncommon to see the top of the bud sliced off.

In starting to prune a bush, pyramid, or standard fruit tree, whether young or old, it is most convenient to first determine what growth is useless or antagonistic to the future well-being of the tree. Branches that cross each other or crowded in the centre of the tree, and not needed for the due furnishing or shape, should be cut clean out close to the main branch or stem, not leaving a projecting piece or "snag" that may lead to a cankerous wound affecting the whole tree. The next point is to consider the shape of the tree, and for either pyramid or standard trees of any of our hardy fruits the determination of the "leader" is an important but not always an easy matter. With young trees several shoots often start from near the apex of the tree, and sometimes a lower branch is stronger and better placed for the leader than the upper and natural one. Occasionally it may in such cases be advisable to sacrifice the original branch, but it is a matter that must be regulated by the judgment of the pruner. The position of the bud to which the main shoot is shortened must be carefully selected, for this

determines to a great extent the direction taken by the following season's growth. If it is growing out the upright a bud must be chosen on the opposite side from that which was left in the preceding season; in fact it is well to make it a rule to cut to opposite buds each year. In all strong growing varieties this is essential to keep the stem central, as the growths will often start at a considerable angle with what may be termed the axis of the tree.

The position of the buds must also be considered in dealing with all the branches, as the shape of the tree is influenced most beneficially by a due attention to this, though it is a matter that is too frequently overlooked, and a branch is shortened without the slightest regard to the probable direction the bud left will take. To keep a tree of any kind open in the centre and well proportioned, outer buds should be always selected, those in a line with the direction of development for the main branches being selected. For others buds should be chosen on the side where there is the most space to be filled, and the only case where an upper or inside bud may be desirable is where a lower branch has extended beyond the radius of the tree and is too near the ground.

As to the length of wood to be cut away from any particular shoot or branch considerable judgment is required, but as a general direction it may be taken that the stronger branches need the least shortening, and the weaker branches the most, keeping in view the shape of the tree. Then as regards young Apple and Pear trees, to which these remarks chiefly refer, it will be found that for the first year or two from one-half to two-thirds of the length of the shoots will have to be removed, or even in some cases three-fourths may be cut away with advantage, though it seems like a sacrifice.

These simplicities will be found in experience to include the principal part of the art of pruning, and the essential qualities required for its successful prosecution—i.e., close observation and careful work are those which a gardener needs in every department of his calling.—PRACTITIONER.

CUCUMBER AND TOMATO TROUBLES.

(Continued from page 130.)

MORE confusion exists as to the causes of so many failures with Tomatoes than is the case with Cucumbers. Experts have had a fine innings. How they have revelled in their discoveries, and wallowed in their scientific phrases! What long chapters they have written in describing the symptoms and working out the progress of the diseases and insects they have found with the aid of a powerful microscope! They "hit it off" so minutely that the worried growers of the plants that have been submitted to examination think the remedy is at hand, and their worries are over. No such luck.

What does it all amount to? Pages of descriptive matter, and only a few lines of probabilities in the way of remedial measures. It is doubtless satisfactory to know that the "black stripe" has been scientifically dubbed *Macrosporium tomati*, also that the "sleeping disease" is known as *Fusarium Lycopersici*, and has its *Diplocadium* stage. But this is not enough; various other technical phrases, including *conidia*, *saphophytes*, *hyphæ*, *chlamydospores*, *zooglæa*, and the like occur too frequently. No doubt they are scientifically correct, and if they were not employed we "laymen" would not be sufficiently impressed with the ability of the writers. As it happens, most gardeners are plain men, and appreciate plain words. Above all things, we like to have something tangible, solid, and useful—not so much and so many learned and laboured intricacies, which aggravate our already disturbed equilibrium.

I propose to give my own views and experiences on the subject of Tomato troubles in a plain way. Private gardeners as a rule have little or no conception of the serious consequences attached to a bad attack of the drooping disease. They scarcely know what it means. If one-third of their plants collapse they need not worry; but, as it happens, their losses are infinitesimal, for reasons which will presently transpire. The case is very different with men who depend principally upon their Tomato crops to provide the wherewithal to support them and their household. When strong fruiting plants by the score or hundred droop suddenly never to recover, a scare naturally sets in, and if no remedy is found serious loss is entailed. It is the same with the "black stripe,"

"yellow spot" (*Cladosporium*), wireworm, and eelworm attacks. All these troubles I have had to face, and therefore am no stranger to the sensations they bring about.

If I remember rightly the drooping or sleeping disease and black stripe were at one time considered synonymous. The same cause was at work in both cases, only the effect differed. That theory appears to be exploded—rightly so, I think. Then a very minute species of eelworm, so small as to be invisible unless viewed through a microscope, was blamed for the drooping disease; but this view of the case does not appear to meet with favour among the savants. The ordinary eelworm causes galls to form on the roots, and is unmistakable; the invisible form was supposed to attack the collars of the plants, and so cut off the supplies of crude sap to the top growth—result, collapse. What particular form of disease or nematoid that eventually finishes up the plants I am unable to determine, nor am I greatly concerned about the correct nomenclature. What I do know is that no reliable remedy has yet been offered. Plenty of suggestions, nothing positive. Can I supply the deficiency? Probably, but not positively, till yet another season has passed. Is my presumable remedy expensive? No, nothing cheaper. With me the price is 10d. per 1000 gallons, and it is applied through a hose. Be sparing of water at the roots, and drooping plants will be seen by the score every day till such times as those surviving have reached the moister soil below.

Mr. Abbey is of opinion that "a dressing of quicklime, a peck per rod to soil where plants are growing, and as a winter dressing $\frac{1}{2}$ cwt. per rod, mixing it thoroughly with the soil to a depth of 15 to 18 inches, coupled with a careful selection of seed, is all that is necessary to avoid 'black stripe,' 'sleepy' or 'drooping' diseases as caused by *Fusarium solani*." That is positive enough, but, unfortunately, unreliable. Neither under glass nor in the open is lime really effective as a preventive. It may do good service from a manurial point of view, but was powerless as tried by me against the drooping disease. On the other hand, we have been repeatedly warned against employing solid manure, or that obtained from stables and farmyards, in Tomato culture. We have been told it must not be dug in, or the growth of the plants will be rank and disease-inviting; it must not be used as a mulch, as this would favour the spread of diseases of a fungoid nature. When a gardener can provide fresh turfy loam each season for the comparatively few plants he grows, solid manure is uncalled for in the soil, and might easily do more harm than good; but the case is very different with the market grower.

The advice is sometimes given to wholly change the soil in houses devoted principally to Tomato culture. Has it ever been practised by those offering this advice, or, say, more than once? Wheeling out the top spit from a house 130 feet long and 20 feet wide would be no light undertaking, and where is the soil to come from to take its place? We find it absolutely necessary, and are content to double dig the borders each season, bringing a little of the fresh subsoil to the surface, and forking in a liberal supply of half-decayed manure into the subsoil. Firmness in the soil is most desirable, and if other details are properly carried out there is little likelihood of the plants being grown too strongly. Not content with the manuring mentioned, suitable chemical manures are also forked in. Lime may be needed in some cases, though not oftener than once in five years, and scarcely then if superphosphate of lime is one of the manures forked into the surface.

So much for the preparation of the soil. We have next to consider what other preventive measures are likely to act beneficially. One experienced Tomato grower is a firm believer in corrosive sublimate. If he still finds this disinfectant effective he will render good service by again referring to it in these pages. Last season I spent 12s. on corrosive sublimate, and failed to see any gain thereby. We dissolved 2 lbs. of it, and diluted with 1000 gallons of water, about a week before planting the Tomatoes, and from first to last, no difference was seen in the behaviour of the plants treated to the corrosive sublimate and those which received none. Sleepy and diseased plants were fewer than usual in each case, thanks to the heavier supply of water. We also tried the effects of gas liquor, or ammoniacal water obtained from the gasworks. This appeared rather strong, and 35 gallons was diluted with 700 gallons of water. Perhaps we watered our liquor too much—"drowned" it, as the toppers say. Anyway, nothing noteworthy came of it. It was given what may be considered a fair trial, and I should have been glad to find it a good remedy, as it is cheap. Yet another large breadth of border under glass was watered with soluble phenyle at the rate of 1 gallon, costing 6s. (six shillings), to 160 gallons of water, and as this was an expensive experiment only one-half of a house was watered with it. Once more nothing very encouraging resulted. Evidently phenyle applied prior to planting is not a preventive of disease. Kainit we have used freely for the past four years, and it is an important element in any cheap and effective mixture of Tomato manure. If

it has the effect of stimulating root action then it contributes towards warding off disease; otherwise it cannot, in my estimation, be rightly classed as either a fungicide or insecticide.

Only in one long house were no experiments tried, and strange to relate the crops in that instance were second to none. Viewed with strict impartiality the only conclusion we could honestly arrive at is that no chemical or other preparations are of avail by themselves. If we starve the plants at the roots a few or many of them will fail. With us it has invariably been the most heavily cropped plants that were the first to succumb, and if we take into consideration the great weight of fruit each plant produces in proportion to the foliage ought we to wonder if they do break down under the strain? They must be kept constantly moist at the roots, and in order to save the watering pot or hose considerably a good mulching of strawy manure should be applied before the plants are far advanced. This serves to conserve moisture in the soil, to keep the atmosphere drier, and the roots active near the surface.

It will thus be seen I hold nearly the same views concerning the treatment of Tomatoes as expressed on page 130 in relation to Cucumber culture. By all means start with plants raised from seed saved from fruit grown on healthy plants. Build these up strongly and sustain them in their vigour by means of abundance of moisture and liquid manure applied to the roots. With plants, as with individuals, it is those weakly in constitution that break down the first if subjected to adverse influences. If in spite of all that is done signs of drooping and black stripe are observable, then lose no time in applying medicine in the shape of phenyle, using enough of this properly diluted to well saturate the already moistened soil about all the plants in that particular quarter or house. Altogether we used 6 gallons of phenyle last season, and consider we were well repaid for the outlay. There is so much yet to be said about Tomato troubles that I propose to again return to the subject.—W. IGGULDEN.

HARDY FLOWER NOTES.

THE time of the singing of birds has come, and with it the delights of the garden appear. The snow has vanished, and, though nights are sharp and chill, the warm sun by day lights up the glowing Crocus and spurs on the other early flowers. All around, while the great pulse of Nature hardly seems to beat, there are faint movements which show that she is beginning to wake from her winter's sleep. The trees still stand gaunt and leafless, their great limbs and traceries of twigs casting happily little shade 'twixt us and the sun. The hedges are bare and still unclothed with their greenery, but the Willows, though leafless still, are dressing themselves with their silvery knobs—their infant "Palms"—that glisten in the February sun. In the garden the borders still look bare without their towering or lowly plants in leaf, but there are shoots astir and pointing through the dark earth. Nor are these all that tell us of the uprising of the flowers, for already the more daring have come and are hastening away.

The Snowdrops no longer hang their pure flowers eardrop-like from their flexile stems, but in wanton mood spread out their petals to woo the bee to explore their blooms in search of hidden store. The pale gold cups of the Winter Aconite look faint and dim beside those of the deeper yellow Crocus which joyously greets the welcome sunlight. The early Irises unfold their graceful petals to charm the gazer as he passes by. The yellow Crocus has found companions of other hues. Imperati's one acts as rival to the Snowdrop in her attractions for the bees, but not unaided nor unrivalled itself, for the Scotch Crocus with its honeyed odour draws to its white blooms many of the winged foragers.

The early azure Grape Hyacinth (*Muscari azureum*) shows its blue cones amid their attendant leaves, and the Spring Meadow Saffron, as *Bulbocodium vernum* is called, is about to make a brave mass of violet-purple flowers on one of the rockeries. About to do it, we say, but ere this is in type it will be in full beauty. The Winter Heath is beaded over with white or flesh-coloured blooms, beautiful on their green branches. The Glory of the Snow has not yet favoured us with its exquisite colouring, but it has peeped through and is on the way, so that we shall soon see its pale blue, deep blue, blue and white, pink, or white flowers. These are all given by the varieties here. Seedling Hepaticas are beautiful, too, with their deep purple, crimson, pink, or pale blue blooms. The catalogue might be extended, though the year is but early and the season a little late. It is a tempting thing to think of and write of our favourites in such a general way, but other things are wished, and we must, perforce, obey.

The Snowdrops will soon be over, and while they are with us we may not unprofitably speak of two or three, saying a word as we go about their relative merits. If one is not mistaken it was

last year that the Aidin Snowdrop, for which we are indebted to our good friend Mr. Whittall, did not prove so fine as in the year before. This year, on the contrary, it has surpassed itself, and is even finer than at first. It has all along shown a greater tendency than most of the others to produce two flowers on one stem, and this year this feature is more than usually noticeable in the case of a clump in a low-lying place at the base of a rockery. Very fine is this Aidin Snowdrop, which botanists call *Galanthus Elwesi*, var. *unguiculatus*—a barbarous name, one can hardly help saying, and not a bit better if "Englished" into the "Claw-petalled Snowdrop," which one is led to believe is what it means. Doubtless the segments show the appearance which have led our botanists to distinguish the variety by this name, but 'tis a pity 'tis so.

Near at hand is a clump of *Galanthus ochrolepis*, said by some to be the finest of all Snowdrops. The bulbs in this clump were sent by Mr. Whittall, and have now flowered twice. One is inclined to hesitate before assenting to the opinion that it is "the finest of all Snowdrops," but should the blooms continue the improvement they show this year as compared with last one, it would be difficult to find much fault with it. The flowers in the clump are variable, but the great majority have long shapely flowers which in their early stages are exceedingly beautiful. The Cassaba Snowdrops—exceedingly handsome as they were—are, alas! nearly all away. There were no signs of the dreaded fungus about them last year, but now there is only a solitary flower left and (as usual) that not the best. Cultivate as we may the spirit of gaining pleasure from our gardens, the remorseless hand of disease plucks some of our joy from our grasp. We must then turn to the Crocus to gain from its bright flowers some cheering draught to allay our grief and console us for our disappointments.

A beautiful little Crocus seen in bloom by the writer for the first time only a day or two ago is the rather rare *C. Crewei* of Hooker, thought to be perhaps the same as *C. melanthera* of Boissier. For this I am indebted to Mr. James Allen, who received it some years ago from my kind correspondent, Mr. Whittall. This was rather an unexpected find, as the first record of this plant was from the island of Syra in 1874. Mr. George Maw tells us that it was found on the hill above the town by Mr. Elwes while on the island on his way to Asia Minor. From a corm flowered by the late Rev. Harpur Crewe in 1875 Sir J. D. Hooker figured the species in the "Botanical Magazine" (plate 6168). Mr. Maw afterwards searched unsuccessfully in Syra for it, and one of his correspondents also looked in vain for it, so that it is pleasant to know that it is in existence in Asia Minor. As Mr. Maw remarks, it is "closely allied to *C. biflorus*," and is "mainly distinguished from that species by its dark chocolate anthers." It is much smaller than *C. biflorus*, as commonly sold under the name of the "Scotch" Crocus, but not dissimilar in that respect to some *C. biflorus* received from Mr. Whittall, or to some of the others—such as *C. biflorus estriatus*. The dark chocolate anthers show well against the white inner segments with their orange throat and the orange-scarlet stigmata. The outer segments are suffused with buff, and prettily feathered with dark chocolate colour also.

A pretty little Crocus also—and one, too, which is but rare—is *C. tauri*, which I owe to Mr. Whittall's kindness. It was introduced into cultivation by that gentleman in 1892, although known previously from herbarium specimens collected by Aucher-Eloy near the Cilician Gates of the Taurus. Its shade of colour is rather distinct, and, although called "pale purple," is nearer a "pale blue" than almost any other in this garden. The segments are very pointed, and when fully open the little flower is starlike in its form. It, like *C. Crewei*, resembles *C. biflorus*, its differences "consisting in the exceptional shortness of its yellow stigmata, its self-coloured flowers, and its thinner corm tunic."—(Maw) One is tempted to say more about some of the other Crocus species or varieties now in bloom. There are some selected varieties of that very beautiful early species *C. Imperati*; some are varieties of *Imperati longifolius*, and there are also some selections of *C. Tommasinianus* which show considerable variations from the ordinary shade. I must restrain myself, however, so as to find space for reference to a pretty little Spring Meadow Saffron received last year as *Colchicum fasciculare*. The name is at present *sub judice*, as I have just sent a flower and leaf to our great English botanist, Mr. J. G. Baker. This has been done at the request of Mr. Gumbleton, who has been in correspondence with Mr. Baker regarding this *Colchicum*, but whose flowers, grown under glass, were over. It would be unbecoming of me, and would almost be "contempt of court" on my part were I to express an opinion on the question of nomenclature now referred to so eminent an authority. It is not, however, out of place to say that this is a very attractive little flower, and well worth growing. The leaves, which are rather broad, appeared about the end of the year; then two little rosy tipped and shaded buds emerged in the centre. These gradually

developed and were added to, until, before the flower was sent to Kew, there were six flowers in the cluster, which appeared from the centre of the leaves. The rosy-pink of the flowers has become fainter as the blooms have progressed; but still they are very pleasing, and have been almost "pets of the household" since their first discovery. The leaves look as if they would still extend, but at present the flowers are well above them. This little Spring Meadow Saffron has been out all winter, and is growing in rather light soil at the base of a rockery, its exposure being S.S.E.

Space fails me now, and the garden tempts one to lay down the pen for the nonce and seek pleasure among these Snowflakes, Snowdrops, Crocuses, Hepaticas, Winter Aconites, Anemones, Primroses, and other early flowers—not forgetting *Iris histrioides*, so well figured in the *Journal* of February 11th (page 111). The temptation must, however, be foregone for an hour or two, as less congenial tasks with pen and ink await one before the post goes. Still, one can steal a glance through the window and see some, at least, of one's favourites. With these and the Hyacinths and Narcissi in the window even irksome things are lightened, and our hearts uplifted by the beauty of the flowers.—S. ARNOTT.

CURE OF CHLOROSIS (OR YELLOWS) IN PEACHES.

A FEW remarks on this subject from one who had the disease for several years in its worst form on several trees under his charge may be of interest at this season. These were all grown under glass, and are now, without exception, as healthy as any trees in the country.

I am encouraged to state my failures owing to a letter received from an unknown reader of the *Journal of Horticulture* whilst the experiments were being carried out, which was an acknowledgment of the help he had received from some notes of mine on another subject in these pages. The writer said, "I think if more of us would only confess a few of our perplexities and failures a little oftener, and send them up to 'the dear old Journal,' all the horticultural world would be great gainers. For thirty-five years have I been working and trying, but I am still willing to confess that I am often perplexed."

In the first place, I may state that the soil here is cold and heavy, and is on the magnesian limestone formation. Some may be tempted to remark that it is just the soil for fruit trees. So it is for certain kinds, Apricots and Plums doing remarkably well, Apples and Pears indifferently. The foliage always has a yellow, unhealthy appearance, the former on the Crab stock cankered badly, though young trees on the Paradise stock planted in recent years are more promising.

Vines under glass, the majority of which are forty years old, invariably carry heavy crops of well finished fruit. The borders, however, have been renewed of late years.

Peaches not being a success on the open walls in this north-eastern county, a house was built 50 yards in length for the express purpose of growing them. The border was well drained in the usual manner, fresh turf, with the grass side downwards, being placed over the drainage. The best of the old soil was retained, but quite three parts of the border was composed of turf cut from an old pasture, which had been stacked a few months previously. Manure was not used, but wood ashes and charcoal were freely incorporated with the soil.

In due course the trees were planted and grew rapidly the first season, the foliage being exceptionally healthy. The house was not heated at that time, so the trees started naturally the following spring. They grew freely, but by midsummer several of the trees showed undoubted symptoms of the yellows. The first to become affected was a tree of Goshawk, followed by Royal George and two or three others. By autumn the foliage on the affected trees was yellow and sickly looking, though they had made good growth. These trees were afterwards lifted, similar soil to what was first used being given to them. For a few months there was an improvement, but eventually all the trees (upwards of three dozen) became affected. Stirling Castle suffered the least, owing probably to this variety being always worked on the Brompton stock.

I suggested to my employer that the soil should be analysed. He thought that was unnecessary, as we obtained good Peaches. But after the trees had been affected for two or three years the growths became weaker, many of the shoots dying, and eventually some of the worst trees were destroyed. In the meantime many experiments with chemicals were tried. Having read of Professor Sachs's experiments with sulphate of iron at Giesmbeim, I came to the conclusion that it was iron of which the soil was short. I therefore dissolved sulphate of iron in warm water and applied it to the trees. In some instances the roots were bared before the

trees started into growth. In others the soil was pointed up, and the mixture well washed in; all the trees had at least 1 lb. each, which was repeated during the season. Some trees received 7 lbs. of sulphate of iron during the season without the addition of any other chemical. Others, again, had nitrate of soda and bonemeal, sulphate of ammonia, and superphosphate, kainit, soot, and lime.

After trying these experiments for two years there was no improvement to be observed. The trees still carried fair crops of fruit of medium size, but the leaves were yellow, although a quantity of soil had been burnt the previous year and well incorporated with that in the border. I consulted several of my friends but could get no farther advanced, sulphate of iron being the receipt invariably given to bring back the colour to the leaves.

As a last resource I found some soil on another part of the estate, quite different in composition from that previously used, being of a sandy nature. This I used in proportion of two to one of the other, plenty of broken bricks with the dust taken out being the only ingredient mixed with it. The first season I experimented with three trees of different varieties; after removing the old soil the roots were well shortened back and the new soil made very firm.

The change was marvellous. Although the young growths came yellow as before they gradually improved in colour, and before autumn the trees that had received the new soil had made splendid growths and were the picture of good health, in marked contrast to the others. The whole of the trees in the house were afterwards treated in the same manner with a similar result, and I very much doubt if there can now be found a more healthy stock of trees in the country.

The above shows that from failures we may often learn a lesson. It also proves that one cannot always replace artificially what is required in the soil.—S., Yorks.

IRIS BAKERIANA.

MANY times have graceful lines been written in the pages of the *Journal of Horticulture* by Mr. S. Arnott anent the beauty of many of the early Irises, such as *reticulata*, *histris*, *histrisoides*, and others, with *I. Bakeriana*, of which the woodcut (fig. 38) is a representation. Of charming beauty and delicious fragrance this Iris thoroughly deserved the first-class certificate accorded to it by the Floral Committee of the Royal Horticultural Society at a meeting held on February 11th. The exhibitors were Messrs. R. Wallace & Co., Colchester, who have placed prominently before the horticultural world many gems of chaste beauty. The colour is rich, deep, royal blue, the slightly paler coloured falls being faintly spotted with white.

PRECEPT AND PRACTICE.

(Continued from page 132.)

"THE common round, the daily task," cannot, so far as our work is concerned, drift into a monotone, and if ever this is felt to be the case the fault is in the worker, and not in the work. The necessity of forethought, continually enforced in all horticultural teaching, which I will here call work by anticipation, is too predominating a factor in the sum of even one day's work to admit of mechanical motion. Work by anticipation opens or shuts the dampers, the ventilators, stirs up or slacks down the fires, shades or admits light, saves the plants from flagging, Onions from the maggot, early Potatoes from the frost, and in fact does a hundred things, and does them at the right time. These hundred little things are to an unobservant man so many little rocks which he will bump against in a day to the detriment of his craft. To be expert in many things, as well as to avoid trouble (not work), our young gardener cannot be too young to commence this prescient training, which if followed up may also carry him far enough to interpret and press into service some simple natural phenomena which otherwise he might set aside as being beyond his ken.

"Come up here, boy, and open your eyes," and I went up from the stokehole, where I was vigorously engaged at firing up in the cool grey of an early summer's morning, to be awakened to the fact that by the time the pipes would be hot the sun would be upon that particular range sufficiently strong to accomplish the object without their aid. "Now, my boy, don't you see that you are wasting fuel and time? small matters compared to the heat you are sending into the houses to let out immediately through the ventilators, drying up everything in the bargain." "Yes, sir, I see." "Well, my boy, always try to see these things beforehand." Now it is astonishing how much there is to see in looking ahead, and how much work there is to be done by anticipation; so much so, indeed, that one is inclined to say the smart man does nearly

everything beforehand. One Chrysanthemum grower I knew dressed the bulk of his exhibition blooms beforehand as they developed on the plants, and when the critical hour was at hand there was no hurry, no confusion, and no trusting of the delicate work to the tender mercy of inexperienced hands. Surely forethought is the highest exposition of "heaven's first law."

Having alluded to simple natural phenomena, we may here touch upon a topic of daily anxiety—the weather. "It is absurd," you will say, "to bring that into our calculation." I beg to differ. We cannot afford to leave it out; we must have it, I admit—take it as it comes, but there are different ways of taking it, the best possibly being by the forelock as little as there is, unfortunately, to grasp; but that little is often of great use. Young people are not, as a rule, I find, as well acquainted with the working of our two most prominent meteorological instruments as they should be, and a little analytical discussion may dispel some error surrounding at least one of them. First by right of pre-eminence (to us) comes that simple instrument the thermometer, a compound word



FIG. 38.—IRIS BAKERIANA.

—thermo-meter—springing from two Greek roots, *Thermo*, heat; *meter*, a measure; literally heat measurer. Simple as it is, without accurate observation misleading statements occasionally occur which are worse than useless.

There are, I fear, few of our boys at starting who read a thermometer correctly, and we know for a fact that many persist in misconstruing its common-sense name into "theometer." As regards observation one I knew, and a big boy too, who daily watched an instrument for over a month from which the bulb had been broken off, and duly recorded the dislocated data in his diary. Two observers should agree in their observation, which, if they are young ones, I seldom find them doing. One will look up, the other down, with a variation of several degrees, especially if the instrument is on a small scale. When I note a lad reading the thermometer I like to test his capability of doing so correctly, and point out to him that in order to do so it is necessary to bring the eye on a level with the height of the mercury in whatever position the instrument is placed. One lesson is sufficient to set the matter right for all time—his time, and the value of all such observation is entirely dependent upon its accuracy. Due justice is not always given by placing even the most reliable instrument in a suitable position beyond the contingent influences of conductors, so desirable in the case of correct shade temperature readings,

whilst affording facility for free communication with the atmosphere. This being the most important record of temperature (shade readings), we have to make it appear to be incumbent upon those who make public statements of it to use a standard instrument, or at least one of proved reliability.

The barometer, also from the Greek, signifying in our tongue a measure of weight—Baro-meter, is worthy I think of an attempt to clear away some apparently mystical and undoubtedly erroneous ideas some persistently regard it with. It is simply what its name implies—viz., a measure of weight—the weight or the density of the atmosphere. Its sole value as a weather guide is founded upon those calculations we are able to deduce from atmospheric variation. Commonly called a weatherglass, because it has so little claim to the appellation I suppose, and not any where the deservedly popular aneroid is concerned, for the glass is there replaced by a metal box; it claims no prophetic power beyond that pointed out. The custom of marking off the different heights, stormy, rain, fair, set fair, appears to me as relevant as it would be to mark at certain hours on the clock, breakfast, dinner, tea, and supper, and then if not forthcoming to say that the clock is wrong.

Anyway my little aneroid will never deceive anyone in that respect, for years ago I removed from its face those too often sources of error and mystery. It tells me now so many inches, it can tell no one any more with certainty, but we can hardly overestimate its value. One must allow that so far as the general public are concerned, or that portion of it to whom its significance is represented by the mackintosh or umbrella, the definitions are well enough so far as they go, but they do not go far enough for toilers of the land, or of the deep, who are more seriously interested in the shadows of coming events not to include all the available data that close observation may afford. We may take it for granted that all storms of abnormal severity upon record have been preceded by a rapidly falling barometer, and that in some instances it is the only indicator we have of an approaching change. As an instance of this I may relate the most remarkable and sudden change which came under my notice during a winter of Arctic severity. It was the sharpest night of a series of sharp nights, when the thermometer fell below zero, and our anxiety to keep things right had risen in proportion. In the wee sma' hours I made a final round with the man "on duty." "No sign of a change?" No, but "the glass" was falling—falling rapidly; that was about 2 A.M., and at seven I awoke to the sound of pattering rain, with a blessed change of about 40° rise in the temperature.

Some years after that occurrence, during an autumn season when Chrysanthemum growers' anxieties approach a climax, under similar indications of a change, all preparations were made for a battle with the breeze. The barometer fell to an alarming extent, but so far as other appearances were in evidence there was nothing to foretell the coming storm. The day dragged out still and oppressive. Bulky, light coloured clouds moved by an upper current of air revolved round the district all day, and so persistently they followed a circular track that it was a remarkable phenomena. I concluded, rightly or wrongly, that we were the actual centre of a widespread cyclonic disturbance, for next day's press reports detailed the damage which took place all around us at the time we enjoyed immunity from it, although later on at night it blew great guns, and shattered the conceit out of one old workman who had been laughing at the "gaffer's" belief in that "weatherglass," and all the fuss of preparations made. I should like for every bothy to have one of those portable, cheap, interesting, and useful little instruments—an aneroid barometer—that our lads might early learn what it is, what it can do, and what it cannot do, more of which I should like to detail, but it must no longer detain.

I suppose it is that a gardener, through life being anxious and troubled about many things from which the weather can never be detached, becomes addicted through daily and almost hourly observations to a continuous forecasting within the limits of twelve or twenty-four hours, and that with more or less success. Truly we cannot do much in this respect; but it is observation that prompts us to grasp opportunities which may otherwise be overlooked, and if there are "more things in heaven and earth than are dreamt of in our philosophy," we may, at least, endeavour to unravel that apparently hopeless tangle the weather by such means as are presented to us, and possibly find them means to the end. The science of meteorology scarcely appears to have given results commensurate with the labours expended on it, but much has been done to clear the way by removing various superstitious theories so long an obstruction. "A hopeless task," some may say. "There are no fixed rules or laws to guide our judgment." To such I would reply, "All Nature is but art unknown to thee; all chance, direction which thou canst not see."—AN OLD BOY.

(To be continued.)

ANTHURIUMS.

IN these days when flowers and flowering plants are the rage and have to be produced in such enormous numbers, useless material must be discarded altogether. The foliage plants which many of us prided ourselves in growing at one time are destined to disappear from gardens generally if the present rage continue.

But I look forward to the more extended culture of the best forms of *A. Andreanum* and *A. Scherzerianum*. For years their claims have been strongly advocated, and it is regrettable that they are not more generally grown at the present time. The last variety is far superior to *Masdevallias*, although we have no objection to these plants, and after *Poinsettias* are over we appear to want scarlet in our gardens for decorative purposes. Certainly there are Tulips and scarlet "Geraniums," but the first are not suitable for the purposes to which these Anthuriums can be employed, while the "Geraniums" are common by their side. Personally I cannot admire the salmon, spotted, and white forms. *A. Andreanum* produces its spathes more or less the whole of the winter and spring, and they last a very long time in a cut state. In a large vase what can be more effective than three or four of these, associated with the same number of *Callas* and a few leaves of the latter. The arrangement, though simple, is striking. Plants the spathes or flowers of which last a long time, are what we need at the present time.

A. Andreanum requires stove treatment, and a number of plants, if the spathes are not needed for cutting, are striking objects for the embellishment of the house in which they are grown. *A. Scherzerianum* certainly requires stove treatment while growing, then can be rested in an intermediate temperature, and is all the better for this treatment, as the plants flower more profusely and grow with greater vigour afterwards. One advantage of resting them in a lower temperature is that they are easily forced into bloom afterwards by introducing them into strong heat. Even supposing these flowers are not needed in a cut state, they are charming associated with *Cattleyas*, *Coelogynes*, *Cypripediums*, *Odontoglossums*, and plants of this nature. Both spathes and foliage correspond admirably.

These plants are slow of propagation, which may be one cause against their more extended culture. But in spite of this they are worth growing with the object of forming a good stock in course of time. The best plan is to grow *A. Scherzerianum* until it divides its crowns freely, and they are large enough for taking off, when the plants may be split up and established in 5 to 7-inch pots according to their size. The same remarks apply equally to *A. Andreanum*. Some of the compact growing kinds soon produce three or four crowns, when they can be rooted separately, the remaining stem above the pot being cut into lengths of two joints. These if plunged into strong bottom heat soon make plants. The old stool frequently starts a number of growths from the base, which in course of time can be taken off and rooted separately.

Anthuriums are not very particular about soil, provided it is light, open, sweet, and porous. We find they will grow with the pots nearly full of crocks, and then filled up with moss used in cakes as frequently found in woods. They will grow in peat, also in fibrous loam. Our compost is good fibrous loam and peat in equal proportions, with broken bricks freely added, and a good layer of moss on the surface. The moss is replaced annually, and the soil is washed from the roots every second year. While in a lower temperature the plants are kept fairly dry at their roots, or else we find their fleshy roots perish.—W. BARDNEY.

LOOKING ROUND.

ALTHOUGH only an amateur I eagerly peruse the pages of the *Journal of Horticulture* as it is issued week by week, and on reading the article "Looking Round" I thought I should like to say that although only an amateur I have spent many days of my holidays at different times in visiting some of the county seats and nurseries within some miles of where I live. Permission of the head gardener or the person in charge has been asked to look round, and I have been shown through and treated more as a fellow gardener and not as an intruder in their domain because I was only an amateur.

In several cases where gardeners have to depend upon themselves for the keeping up of their stock I have been able to exchange a few cuttings or plants, proving I hope beneficial to both parties. One pleasant recollection I have in my mind is of a day when in the neighbourhood of Highbury, and being greatly interested in the culture of Orchids I made my way to the lodge entrance of the residence of the Rt. Hon. Jos. Chamberlain, and asked (not without some hesitation) to see Mr. Burberry, and the pleasant way I was received by that gentleman and shown through the various Orchid houses I shall not easily forget. I take this opportunity of thanking all gardeners who are willing to help such as I, who are lovers and growers of the flowers in our own quiet way but not professional gardeners.—AN AMATEUR.



WEATHER IN LONDON.—Though the end of last week was fine on the whole this one has commenced with the proverbial March winds in very strong force. Monday morning was bright, as was Tuesday until between two and three o'clock, after which rain fell in drenching showers on both days. A gale of wind made it still more uncomfortable. Early on Tuesday morning there was a little frost. On Wednesday the same conditions prevailed; rain and snow were falling rather freely at the time of going to press.

WEATHER IN THE NORTH.—February closed with a good deal of rain, occasional sleety showers, and boisterous cold westerly winds, with touches of frost on some mornings. Monday was cold, but fair in the afternoon and evening. On Tuesday morning the hills and the lower grounds were whitened, and 5° frost were recorded during the night.—B. D., *S. Perthshire*.

ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral meetings of the Society will be held on Tuesday, March 9th, in the Drill Hall, James Street, Westminster, 1 to 4 P.M. At three o'clock Prof. W. M. Ward, F.R.S., will deliver a lecture on "Microscopic Gardening."

WOLVERHAMPTON SHOW.—The Wolverhampton Floral Fête, which has made such great progress during recent years, we find by the schedule is to be held this year on July 13th, 14th, and 15th in the West Park. Excellent prizes are provided in classes for specimen plants (£45), groups (£50), also for Orchids, Roses, Pansies, and Violas, Carnations and Pinks, fruit and vegetables. The "Hawley" silver challenge cup, value £20, is offered for a "Display of Plants or Floral Arrangements." A large and diversified exhibition may be expected.

WOODBIDGE HORTICULTURAL SOCIETY.—The annual exhibitions held in the Abbey grounds of the above pleasant Suffolk town rank as the best in East Anglia, and the next show may be expected to at least equal its many predecessors. The schedule is of wide scope, comprising 176 classes. Roses and floral decorations are prominent features. A 25-guinea challenge cup is provided for twenty-four Roses, and a 12-guinea cup for twenty-four Teas and Noisettes. Silver medals are also provided by the N.R.S., Mr. O. G. Orpen, and Rev. J. H. Pemberton.

THE SHREWSBURY SHOW.—Famous as previous exhibitions have been at Shrewsbury, the show, which opens in the Quarry Grounds on August 18th, should eclipse them all. In the schedule to hand we find the following special awards:—The Royal Horticultural Society offer a gold Banksian medal for the exhibit (not for competition) which in the opinion of the Council of the R.H.S. best represents the progress of horticulture for the last sixty years. The R.H.S. will also give a silver-gilt Knightian medal in the Victorian decorative fruit class, with other medals and awards as the Council may decide. The Worshipful Company of Fruiterers (London) will give the gold medal of the Company to the Victorian decorative fruit class, and three silver medals of the Company, as specified in the schedule. The Veitch Memorial Trustees offer the Veitch Memorial medal and £5, in addition to the first prize of the Society for decorative dessert table. The Committee of the Shropshire Horticultural Society offer three special Victorian awards, consisting of handsome full dessert services of the value of £12 12s. each, manufactured at the far-famed Coalport, Salop, china works specially for this show, with royal monogram in the centre, and of which no duplicates will be issued—1, For the most attractive display of rare plants (not for competition), grown by the exhibitor; 2, For the most attractive display of cut flowers, in space not exceeding 25 feet by 6 feet (not for competition), grown by the exhibitor. 3, For the most novel exhibit specially illustrating the progress of horticulture during the last sixty years, either in plants, flowers, fruit, or vegetables (not for competition), grown by the exhibitor. The Society will also award gold and silver medals on the recommendation of the Judges and approved by the Committee. Valuable money prizes are also added, nearly £340 being offered in six classes, the total for the show exceeding £800.

— OXFORD SHOWS.—We are informed that a Commemoration Show will be held at Oxford on June 29th, and a second Summer Show on August 24th.

— UNITED HORTICULTURAL BENEVOLENT PROVIDENT SOCIETY.—The annual meeting will take place on Monday evening next, March 8th, at the Caledonian Hotel, Adelphi. The chair will be taken at eight o'clock by Mr. A. Dean.

— DEATH OF MR. WILLIAM MILNE.—We learn that this well-known gardener, whose afflictions entitled him to be placed on the pension list of the Gardeners' Royal Benevolent Institution at the recent election, died on Monday morning last. He was only forty-three years of age. He leaves four children, under thirteen years of age, dependent on the widow's earnings in a small lodging house. This seems a fitting case for the benefit of the Royal Gardeners' Orphan Fund.

— ROYAL GARDENERS' ORPHAN FUND.—A meeting of the Committee was held on February 26th, when William Marshall, Esq., was again elected Chairman of the Executive. Amongst others the following special receipts were announced:—Chislehurst Gardeners' Mutual Improvement Society's concert, £23 12s. 6d., a special vote of thanks being accorded; Messrs. Bunyard & Co., nurseries, Maidstone, £5 5s.; Mr. Owen Thomas, Frogmore, £2 2s.; Mr. T. Whillans, Blenheim, £2; Isle of Wight Horticultural Association, result of a lecture by Mr. H. J. Jones, £1 2s.; Miss Noble, Henley, £1; Mr. J. Kipling, 11s. 7d., and several smaller sums. The result of the election was announced, whereby thirteen children are placed on the Fund and the respective guardians appointed, the mothers in each case undertaking the duties.

— PRESENTATION TO MR. DAVID THOMSON.—Since learning of Mr. Thomson's intention of retiring from Drumlanrig, many of his old pupils think it a fitting occasion for showing their esteem and appreciation of his many good qualities as a man and his abilities as a gardener, also their gratitude for his kind interest in their welfare, propose making some suitable presentation, as may be afterwards decided upon. In case some of Mr. Thomson's old pupils may not have received a circular, we are requested to notify that subscriptions will be duly acknowledged by Messrs. J. McKenzie, Linton Park, Maidstone; W. Allan, Gunton Park, Norwich; J. Young, Zoological Gardens, Regent's Park; J. Melville, The Lodge, Finsbury Park, N.; T. S. Simpson, Stourton Court, Stourbridge; A. Henderson, Thoresby, Ollerton, Newark; J. Garrett, Whittinghame, Prestonkirk, East Lothian; J. Henderson, Balbirnie, Markinch, Fife; W. Priest, Eglinton Castle, Irvine, Ayrshire; and W. B. Fisher, Stackpole Court, Pembroke. This considerate action of the "old pupils" is very gratifying, and cannot fail to be appreciated by their worthy old chieftain. We have pleasure in making the project widely known.

— READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—The fortnightly meeting of this Society was held in the club room on Monday evening, when Mr. T. Neve presided over a very large attendance of members. After the usual business had been disposed of, Mr. P. H. Foulkes, B.Sc., Edinburgh, of the staff of the University Extension College, Reading, gave an interesting and practical lecture on "Insects Injurious to Plant Life." Mr. Foulkes, in opening his subject, dealt with the great damage done annually by the various pests, and drew attention to the fact that the annual loss to the country runs into thousands of pounds sterling. In instancing some of the most noticeable pests he quoted the Hop aphid as doing damage in one year to the extent of £500,000. The lecturer touched upon the resemblance of fungoid growths to the results of insect attack, and showed this more clearly by throwing on the screen photographs of Swedes which had been attacked by "finger and toe" and Swedes which had been attacked by the "Turnip gall weevil." An account of the life history and habits of the winter moth was given, and, knowing these features, the gardener is in possession of valuable facts which he could make use of to overcome the pest. The eelworm was also taken as a type of garden pest. Pictures were put upon the screen showing the attack on Cucumber and Tomato roots, as well as the various life stages of this pest. In dealing with the measures of prevention and remedy he instanced, among others, the use of capture plants as a means of clearing the ground of the eelworm, a practice which has been adopted in Germany on a large scale with considerable success. In concluding, the lecturer said that though we knew the habits and characteristics of a number of our pests, yet there was a great deal of information still to be learned, and he pleaded for the help of those who, by their natural habits and calling, were continually coming into contact with insect pests. A number of questions were asked, and an interesting discussion followed.

— GARDENING APPOINTMENTS.—Mr. R. Scott, late of Steep Hill Castle, Isle of Wight, has been appointed to succeed Mr. T. H. Crasp as head gardener to the Right Hon. F. J. S. Folijambe, Osberton Hall, Worksop, Notts. Mr. Frederick Cockell, for the past four years foreman in the gardens at Sand Hutton, York, has been appointed gardener to Mrs. Fleming, Normanby Hall, Middlesbro'-on-Tees. Mr. Herbert May, formerly head gardener at Markree Castle, Collooney, Sligo, has been appointed head gardener to G. Gatehouse, E. q., Westwood Noctorum, Oxtou, Birkenhead.

— ELECTRIC TREES IN DAKOTA.—On January 4th, during the worst of the great wind and snowstorm at Huron, the air was heavily laden with electricity. The Cottonwood trees in front of the Chicago and North-western offices presented a very strange and novel appearance. The trees were buried in snow almost to their tops, but at the end of each twig on every branch in sight was an electrical spark about as large as a common field Pea. On taking hold of a twig the spark extinguished, but on withdrawing the hand the spark reappeared. Dispatcher Wilson, who wore a glove with a hole in the thumb, took hold of a twig, and the spark transferred itself to his thumb and back to the twig when he let go. There was no shock experienced, says an American contemporary, in handling the twigs, and the light did not waver or tremble, but was quite steady. The trees looked as if a colony of fireflies had settled upon them for the purpose of an illumination.

— THE MIDLAND CARNATION AND PICOTEE SOCIETY.—We have received the annual report of this Society for 1896, and schedule of prizes for 1897. It is a remarkably complete production, indicative of life and prosperity. The exhibition for 1897 will be held at the Botanical Gardens, Edgbaston, Birmingham, on Thursday and Friday, August 5th and 6th; or should unforeseen circumstances necessitate any alteration in the date, notice will be sent to all subscribers not later than July 15th. Open to the public on the first day at 2 P.M., and close at 8 P.M.; on the second day at 10 A.M., and close at 6 P.M. Honorary exhibits of other flowers will be accepted from subscribers to the Society, and the Society's silver-gilt medal will be awarded to the most meritorious honorary exhibit in the exhibition, the Society's silver medal to the three next best honorary exhibits if of superior excellence, and the Society's bronze medal will be awarded to any other exhibits recommended by the judges, after the style of the Royal Horticultural Society in London. Any further information can be obtained from Mr. Robert Sydenham, Mr. H. Smith, or any member of the Committee. Total value of prizes, challenge cups, medals, &c., about £160.

— CIDER AND FOOD APPLES.—In an interesting lecture delivered before the Society of Arts on Wednesday evening this week, Mr. George Gordon remarked—"From the Apple orchards the hundreds of inferior varieties, whether belonging to the table, cooking, or cider sections, should be swept away and replaced with others that are sure bearers and produce fruit of good appearance and high quality. I would advise also that the area of many cider orchards, which in the western counties form, it is computed, about four-fifths of the whole, be reduced by grafting the trees with dessert or cooking varieties. Cider is an excellent beverage when properly made, but we are now concerned with making the orchards as profitable as possible, and it is obvious that Apples worth from £10 to £20 per ton are more profitable to grow than those which will not realise more than from £1 to £5 per ton. It is also evident that to obtain a full return from their orchards farmers must grow both late and early varieties, and adopt some inexpensive method of storing the fruit of the former until after the early supplies have become exhausted. The most profitable of the cooking varieties are Bismarck, Ecklinville, Dumelow's Seedling, Gascoyne's Scarlet, Golden Spire, Lane's Prince Albert, Lord Suffield, Newton Wonder, Potts' Seedling, Tower of Glamis, and Warner's King. Then of the dessert varieties I would recommend Blenheim Pippin, which is slow in coming into bearing when planted as an orchard standard, but grafted on large trees it quickly becomes productive, and the fruit, by reason of its handsome appearance and high quality, invariably commands a good price; Cox's Orange Pippin is one of the most profitable of dessert Apples in districts favourable to it, and when the fruit is properly marketed; Duchess of Oldenburg, an early variety which has a short season; Devonshire Quarrenden, useful for planting within a short distance of the market; King of the Pippins, and Worcester Pearmain. These form but a small proportion of the Apples in the catalogues, but before we can make our orchards profitable we must follow the example of the American growers, and instead of planting two or three trees each of a hundred varieties we must plant a hundred trees each of a few varieties, and these of the very best."

— FEBRUARY WEATHER AT DRIFFIELD.—Mean temperature at 9 A.M. (corrected), 39.27°. Wet bulb, 38.32°. Mean maximum, 45.48°; mean minimum, 35.12°. Highest, 56.4° on the 22nd; lowest, 24.8° on the 1st. Mean of maxima and minima, 40.30°. Mean radiation temperature on grass, 29.76°. Lowest, 12.8°, on the 1st. Rainfall, 2.565 inches. Number of rainy days, fourteen. Greatest amount on one day, 0.88 inch on the 5th.—W. E. LOVELL, *Observer, York Road, Driffield.*

— KOELREUTERIA PANICULATA.—This beautiful Japanese tree is not nearly as much appreciated in ornamental gardening as it deserves to be. Nurserymen generally say that the orders for it are comparatively limited. It is, says "Meehan's Monthly" one of the most beautiful of our small trees, having striking characteristics at all seasons. When in the springtime of its growth few Fern fronds are prettier than the leaves of this tree, while at midsummer it is a complete mass of golden beauty, while in the fall of the year its rich crimson foliage vies with many American trees that have been celebrated in this respect. Even in the winter time the characteristic growth of the branches is particularly striking. The whole head of the tree, in fact, presents beautiful outlines that would be admired by any lover of artistic rules.

— CUTTING DOWN TREES ON COMMONS.—The adjourned summons against Lady Saunders, the wife of Sir Edwin Saunders, residing at Fairlawn, Putney Common, for aiding and abetting her gardener, Abraham Newell, in wilfully damaging a Birch tree growing on Putney Heath came on for hearing, together with the summons against the gardener himself for his participation in the matter. The tree was cut down on Christmas Day, as her ladyship found that it obstructed the view of the common from her house. The Magistrate now received an intimation that Sir Edwin Saunders had paid £5 5s. to the fund for the maintenance of the common, as was suggested when the case was first before the Court, but the Conservators were not satisfied with the undertaking given. Sir Edwin wrote that he would take care that no one engaged at his house should re-open the subject. Mr. Francis thought Sir Edwin should undertake that there would be no repetition of such conduct. As to the gardener, he had simply acted over-zealously, and in the interests of his employer. Mr. George Bell, who represented the gardener, said although he had pleaded guilty he was not the man who actually cut down the tree. Mr. Birkett, for the Conservators, pressed for an adjournment to give Sir Edwin an opportunity of carrying out the undertaking. Mr. Francis, while sanctioning this course, said he would look upon any repetition as a serious offence, and should not deal with it with the same leniency.—("Garden.")

— THE HEIGHT OF THE REDWOODS.—It has usually been considered by the students of American trees that the Sierra Sequoia was the tallest, as it is the largest, tree in North America. Professor C. Sargent, writing of the Redwoods in "Garden and Forest," states that "three individuals, each 325 feet high, have been measured in the Calaberas Grove; and these, so far as I have been able to learn, are the tallest American trees whose heights have been authoritatively recorded. On the 7th of September, 1896, however, General Henry L. Abbot, Mr. John Muir, and I were on Eel River, near the lumber-camp at Scotia, California, and measured a Redwood which had lately been felled, and which led us to suppose that this species grows to a much greater height than any other American tree. This particular individual was only 662 years old, with a trunk diameter of 10 feet 5 inches at 6 feet above the ground, and of 9 feet 15 inches above the ground; it measured 230 feet to the first limb, where the trunk was 2 feet 9 inches in diameter, and 340 feet to the top of the stem. In trunk diameter it was smaller than the average size of the trees in this particular forest, which extends without a break for about twenty miles along both banks of the Eel River; its height was not exceptional, and may be taken as the average height of the trees in this forest; and the men in this camp who pass their lives in working among these trees were confident that individuals 100 feet taller than the tree we measured could be found. This, perhaps, is not improbable, as Redwood trunks from 15 to 20 feet in diameter are not rare, and occasional trees with trunks from 22 to 25 feet in diameter can be found. Judging by the fact that the Eel River trees, which had grown in a deep alluvial deposit, had only attained a diameter of 10 feet 5 inches in 662 years, some large Redwoods must have lived through several centuries and reached a much greater height. Of other trees measured in this forest one was 43 feet in circumference at 5 feet above the ground; another was 45 feet in circumference at the same height, and another 52 feet 5 inches. The trunk of another measured 4 feet 3 inches in diameter 180 feet above the ground."

— THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.

—A meeting of the above Society was held in the Parish Schoolroom on Tuesday, February 23rd, when a paper was read by Mr. W. P. Leadbetter, gardener to A. Wilson, Esq., Tranby Croft, on "The Routine Cropping of the Kitchen Garden." Taking each vegetable alphabetically, the essayist explained the mode of cultivation adopted successfully by himself, the nature of the soil, and the varieties with which he had attained that success. Early, midseason, and late crops each received their share of attention throughout the entire season of growth. Time would not allow all the details of the subject to be discussed; but the essayist drew attention to the many difficulties to be contended with in the kitchen garden. Changes of weather and insect pests often cause a great deal of annoyance and anxiety; against these it is well to be prepared, by which means ultimate success will in most cases be rendered sure and certain.—F. L. T.

— RHODODENDRON PRÆCOX.—The race of dwarf early flowering Rhododendrons which originated from the crossing of *R. ciliatum* with other species and varieties claims as one of its prettiest members the variety under notice. In this particular instance *R. ciliatum* was crossed with *R. dauricum*. *R. præcox* cannot be said to resemble either of its parents very closely. Whilst it has the bushy habit of *R. ciliatum* with its larger flowers it has the smaller leaves of *R. dauricum*, the colour of the flowers being rose. Although perfectly hardy a sheltered position should be found for this variety, as from its early date of flowering (latter end of February) the blooms are sometimes damaged by frost if grown in an exposed position. In addition to being a good plant for outside work its exceptionally free-flowering qualities make it a delightful plant for lifting and flowering in a cool greenhouse. Plants can be grown 3 feet high and 3 feet in diameter, and be so thickly covered with bloom that the leaves are scarcely visible.—W. D.

— ELECTRICITY AND SEED GERMINATION.—Some experiments recently made at the Massachusetts Agricultural College by Mr. Asa S. Kinney seem to show that a current of electricity will accelerate the germination of seeds. In a collection of seeds treated for twenty-four hours, 30 per cent. more germinated under the current than in lots untreated, and the seeds which received the electrical stimulus gave a higher percentage of germination than others. In many cases electricity seems to act a good deal like light does in its stimulating effect. It must be understood, however, that even if we admit this we do not know the best methods of using electricity upon plants in the soil, nor what strength of the current will probably secure the greatest growth. The range and the strength of the current which accelerates germination is found to be exceedingly limited. So far as these experiments go to form a basis of judgment it would appear that the strength of the current which shows the greatest growth of radicles is equal to about three volts, where an interrupted induced current is used.—("Garden and Forest.")

— "MIMICRY IN NATURE."—Such was the title of an able paper read by Mr. Bott of Walton at a recent meeting of the Wakefield Paxton Society in presence of a good and appreciative gathering, over which Mr. Brown of Outwood presided, with Lieut. Goodyear in the vice-chair. The essayist, who is an old friend of the Society, said in his introductory remarks that copying or imitating was universal throughout animated Nature, and a strong bond of sympathy united lovers of Nature and the objects of their regard. It was only in the exercise of this spirit of sympathy that men could enjoy Nature. The wonderful power of adaptation to circumstances in natural objects was one strong link which bound them so closely to thoughtful men. The speaker, proceeding, asked his audience to consider his subject under (1) Co-operation or Division of Labour—in the floral world—illustration, the Corn Blue-bottle; (2) Parasitism, the Yellow Rattle (as illustration—a thief and a robber, a sponger who would rather die than work—the Clover Dodder and the Mistletoe); (3) Mechanical Action, adopted by many plants to secure cross fertilisation, and by others to convey the seed to a distance; (4) Clinging (in plants), as the Virginia Creeper and others; (5) Climbing, as in the wild Rose; (6) Necessitous Cases, as in plants, or branches of the same plant or tree, which raised themselves by twining around a stronger neighbour; (7) Forethought, some trees and plants laying up such stores of life as to send out new shoots long after they were cut down; and (8) Decoy Plants, such as assumed various forms in order to induce bees to visit them with the pollen. Under these heads Mr. Bott supplied much information which was more than ordinarily interesting, and at the same time, to use his own phrase, afforded "a fascinating side view of plant life." On the proposition of Mr. Webster seconded by Mr. Geo. Parkin, cordial thanks were given to the essayist.

— BOTANICAL RESEARCH.—The American scheme for a laboratory for botanical research in the Tropics appears to be assuming a definite shape, Prof. MacDougal having undertaken the duty of organising the Commission which shall visit various localities for the purpose of selecting a site. In a letter in the *Botanical Gazette* for January, Prof. Humphreys of the John Hopkins University advocates the claims of Jamaica, where there are already two botanic gardens, at Castleton and Gordon Town, and where the Governor, Sir Henry Blake, is interested in biological science.

— ONIONS.—Our consumption of Onions and also our importations of Onions continue to increase year by year. The average quantity annually brought into the United Kingdom for the three years 1894 to 1896 was 5,702,928 bushels, valued at £714,449. We thus pay to foreign growers, says a contemporary, nearly three-quarters of a million sterling per annum for a product which, though widely cultivated in this country, has not a sufficient area allotted to it. In America the crop is regarded as so important that a farmers' bulletin has been issued from Washington urging the necessity of the extended and improved cultivation of this nutritious bulb. Light, well-drained fertile soils are recommended, especially such as are rich in organic matters. Liberal dressings of fertilisers are advocated, applications of 200 lbs. to 400 lbs. of nitrate of soda in four equal dressings, 800 lbs. to 1000 lbs. of kainit, and a few hundred pounds of bonemeal per acre being suggested. The varieties of Onions that are most successfully cultivated in the United States include the Danvers, Extra Early Red, Egyptian, Red Globe, Yellow Globe, Potato Onion, Shallots, Silverskin, Wethersfield, White Globe, and Yellow Strasburg. Of introduced varieties preference is given to the Prizetaker. The method of cultivation recommended is to start the seed under glass, and afterwards transplant into the open field. For storing the bulbs after harvesting, dry cool rooms are considered to afford the best results. The growing of Onions for seed, such as is practised by English cultivators in Bedfordshire, Kent, and elsewhere, is a separate business. Among the pests of the crop are the maggot of the Onion fly (*Phorbia ceparum*) and the fungus called Onion smut (*Urocystis cepulae*); methods of combating these are well known to English growers.

ROYAL HORTICULTURAL SOCIETY'S COMMITTEES' AWARDS.

SURELY the comparison instituted by your correspondent, Mr. Alexander Dean (page 162) is neither fair nor logical. Any comparison between the awards made respectively by the R.H.S. Committees and by the deputations appointed by the Council at the York and Chester Shows, based upon the suggestion of an arithmetical average per show, wherein each of the great shows referred to is counted merely as a unit as against an ordinary Drill Hall meeting, or even a Chiswick Gardens meeting, cannot be considered as otherwise than misleading. At the York and Chester Shows numerous and varied subjects were submitted for award, whereas, as a rule, a Chiswick meeting deals with but a few, or perhaps even with but one subject only.

The only fair comparison, were one necessary, would be between the Northern shows and that at the Temple Gardens, and this affords the following results:—

Awards at the Temple Show	...	...	...	...	60
Do. at the York Gala and Chester Show (i.e., two shows)	...	...	...	...	75

Imitating Mr. Alexander Dean, I might say that had the Committee's liberality at the Temple been imitated at York and Chester the awards at the latter would have been 120 instead of seventy-five. But such comparisons prove nothing, the conditions at the several shows being in many respects so dissimilar.

I am inclined to think that few will be found to accept Mr. Dean's estimate of the character and methods of the Orchid Committee. Its members are probably fully as competent as those of the other Committees of the Society, and, with them, equally discharge their duties to the best of their ability. But I am certainly with your correspondent in his suggestion that the granting of awards is "perhaps too free," although it is curious that he quarrels with the Council for saying the same thing. Unless an award is, as Mr. Dean suggests, to indicate only a good average merit, some check must be put on the too lavish manner in which they are bestowed.

Remonstrance, yearly repeated, seems to have no result, and more drastic measures seem called for if the end is to be attained. Would it not be effectively secured by requiring a two-thirds instead of a bare majority as the condition to the granting of an award? And, certainly, a new plant ought not to go forth to the public with the recommendation of the R.H.S. attached to it unless at least two-thirds of the Society's advisers in the matter are of opinion that the plant or product in question is an improvement on existing varieties. A majority of one in a large meeting is surely an insufficient basis for the granting of such a recommendation.—F. R. H. S.

[Many persons will not deem the two-thirds majority proposition unreasonable, nor would they an addendum to it—that all members of Committee should vote in a division.]

STRAWBERRIES AND THEIR CULTURE.

THE Strawberry is very distinct from other Roseworts, as its seeds are borne on the outside, which is the opposite of the Fig, which is a Nettlewort; in fact, a Strawberry resembles a Fig turned inside out. Cultivated Strawberries have originated from our wild wood Strawberry, the Hautbois, the Scarlet, the Pine, and the Chilian Strawberry. All the species are much alike, and are perhaps forms of the same plant, as the difference is mainly in the leaves and flavour.

Strawberries are propagated by seeds and runners. Seeds are only employed for the sake of raising new varieties, as Strawberries cannot be relied on to reproduce the parent. Mr. Knight was the first in this country to raise cross-fertilised Strawberries, and in the year 1818 he had over 400 seedling varieties. Many other persons have followed in his footsteps. Mr. Bradley was the raiser of that most popular variety Sir J. Paxton; Mr. Laxton raised Noble, Latest of All, Sensation, Competitor, Monarch, Leader, and Royal Sovereign; and Mr. Allan raised Lord Suffield, Gunton Park, and Empress of India, all first class either in appearance or flavour with one exception.

The Strawberry rapidly propagates itself by plantlets produced on runners, and many methods are resorted to in securing them for outside planting and for forcing. One of the quickest and best methods is to peg the young plants on the runners into 3-inch pots, and plant as soon as rooted in well prepared ground made firm. If a crop of fruit is wanted the next year, plant not later than the first week of August. Plant the early varieties in a south border, John Ruskin, Noble, Royal Sovereign, Scarlet Queen, and Vicomtesse Hericart de Thury ripening in the order named. Noble dwindles away with us after the third winter, and is, therefore, cleared off after fruiting a second time.

For main crop Royal Sovereign, Dr. Hogg, Sir J. Paxton, President, Duc de Malakoff, and British Queen are free croppers with fine flavour; Laxton's Monarch and Leader promise well, as weak plants put out late in the autumn of 1895 fruited well last year. Competitor, though an immense cropper, is wanting in flavour, and the fruit melts before it is ripe if damp weather prevails. It is not suited for our climate.

For late use there is none better than Latest of All; its name, however, is a misnomer, as there are others later. It is grand in size of berry, cropping, and flavour. Lord Suffield and Waterloo are also very fine; by planting some of each on a north border we have Strawberries in August. To succeed those keep after forcing some of Noble and Vicomtesse Hericart de Thury, which harden in a cool frame, and at the end of May plant on a south border, or better, at the bottom of a wall, never letting the plants want for water. Strawberries may then be had during September, and with a few lights to cover the plants, in October, when they will be much prized for dessert.

Forcing.—Peg the plantlets into 3-inch pots filled with a compost of loam broken fine and horse manure, and when well rooted transfer to 5 and 6-inch pots. The potting material may consist of loam five parts, horse droppings one part, and a good dusting of bonemeal; if the loam is heavy add one part of leaf mould. Some cultivators, after severing from the parent plants, place the 3-inch pots behind a north wall, and likewise the plants after they are placed in the fruiting pots. Except the weather be very hot little is gained, but, on the contrary, time is lost by that practice. Syringe the plants well night and morning till the middle of September, when the nights here begin to get cold and a touch of frost is not uncommon.

When the roots are working freely round the pot weak liquid manure will plump up the crowns; artificial manure also helps if used during August or September. Strong plants potted early often throw up flower spikes during September, all of which cut out as soon as seen, except you want a few ripe fruits for Christmas, in which case house the plants as soon as fruit is set.

Store the plants in cold frames for the winter, or till wanted for forcing. Our first batch goes in early in January. The plants are plunged in a bed of leaves in an early vinery having a temperature of about 50°. After the flower spikes are a couple of inches long the plants are removed to shelves nearer the glass. When the plants are growing freely give a pinch of artificial manure to each pot. Guano I find good, though some persons prefer blood manure. Liquid manure is given at alternate waterings till the flowers commence opening, when another dressing of artificial manure is applied. An occasional supply of clear water helps to keep the soil sweet. Soot and sheep manure make the best liquid. Pigeon manure is good, but dangerous unless used weak.

We syringe the plants twice a day till the flowers commence opening, then cease till the fruit is set, when the syringing is resumed till the fruit commences colouring. If green fly or red

spider show we fumigate with Murray's vapouriser, and find that no injury is done to the delicate flowers.

The varieties which force best with us are Noble, which sets freely no matter how early forced, and gives splendid berries of a fine colour, many being 3 ozs. in weight, and from four to eight on a plant. Royal Sovereign is of better flavour, an equally free setter, but the berries are smaller. Dr. Hogg also does well, giving berries as fine as Noble, a little pale in colour, but excellent in flavour. President and Scarlet Queen set freely; flavour and colour good, but the berries smaller than those mentioned. Vicomtesse Hericart de Thury and John Ruskin are excellent early forcers, and the fruits of good flavour, but much smaller than the three varieties first named. For market Noble and Royal Sovereign are by far the best, and no Strawberries that I know carry the weight of those two combined with appearance.

Do not let the temperature at night exceed 60° till after the fruit is set, when it may range between 65° and 70° if the fruit is wanted ripe quickly. By removing the plants to a cooler and more airy house for a couple of days before the fruit is gathered the flavour is much improved.—W. T., Ireland.

FLOWERING TREES AND SHRUBS.

(Continued from page 154.)

DECIDUOUS.

SOME of the many species and varieties of *Pyrus* have during recent years been freely planted for ornamental purposes, and right well have they repaid the attention bestowed upon them, for not only are they beautiful when in flower but also when their miniature fruits are ripe. The Siberian Crab is a good example of a *Pyrus*, having both these attractions. The flowers greatly resemble those of the cultivated Apple, and the brightly coloured red and yellow fruits are in the autumn conspicuous and tempting in appearance. Some individuals profess to like the taste of these showy Crabs, but I fancy few retain the liking long. *P. floribunda* and *floribunda atrosanguinea* form extremely handsome bushes or half-standards.

When grown in a sunny position the long slender shoots are completely studded with rose and red flowers; small fruits are also freely produced. No one can fail to be delighted with these two. There are several varieties of *Pyrus malus*. Three of the best are Elise Rathe (pendulous), John Downie, and *præcox*. *P. domestica*, although not particularly showy as far as the flowers are concerned, is worthy of being grown on account of the distinctness of the leaves, which are broad, glaucous green on the upper side, and underneath covered with white cotton-like fibre or down. *P. spectabilis* grows quickly and forms a handsome tree, the flowers are large and showy, sometimes pale red in colour, at others almost white with a red tinge.

In *Rhus Cotinus* (Smoke Plant) we have a novel and showy shrub, which produces pale purplish flowers in July, and when the flowering is over the long hairy pedicels form another attraction.

The value of *Ribes sanguineum* for growing in the form of a bush is widely known. To my mind the best position for it is an open one on grass. It then grows to a large size, and the drooping racemes of deep rose-coloured flowers are shown off to advantage. *R. s. atro-rubens* produces flowers much deeper in colour than those of the older form, and *glutinosum* bears larger racemes of pale rose flowers; *album* is worth growing for the sake of variety, although the colour is rather cream than white.

The various species and varieties of *Robinias* are extremely handsome, the Pea-shaped flowers being produced in pendulous racemes, and old trees are quite picturesque in appearance, even when the leaves have fallen. *R. pseud-Acacia* (Locust Tree) is perhaps the most widely known among them, and many an old garden contains a fine specimen of it which in April or May unfolds its countless white blossoms. *R. hispida* forms a pretty dwarf standard, and should if possible be planted in an isolated position, as it grows so slowly that if placed in a shrubbery the other occupants—if not carefully watched—overrun it. The flowers are of a fine deep rose colour, and are produced so freely that it is a good plan to remove some of them to allow those left to be seen to advantage. This *Acacia* is not often seen, and I can strongly recommend it to the notice of all. *R. neo-mexicana* is a recent introduction which is said to be the handsomest of the family.

Among *Spiræas* Anthony Waterer, *ariæfolia*, *Douglasi*, *prunifolia flore-pleno*, and *Thunbergi* are some of the best. *Staphylea colchica* (fig. 39) is a deliciously scented white-flowering shrub, which I have known for fifteen years, and during that time I have only met with it in two private gardens. This is, I think, a matter for regret, as I feel sure that all who see it in flower will be delighted with it.

I do not intend to dilate upon the charms and usefulness of the ever popular Lilac, as they are well known to all who take an interest in gardening. I will, however, enumerate a few of the many good varieties of *S. vulgaris*. *Alba* and *alba grandiflora* are excellent whites, which might with advantage be more largely planted. *Charles X.* is, I think, one of the very best for general planting, as the flowers are massive and of pleasing colour. *Chinensis* bears flowers of a lovely violet shade, which are borne on shoots more slender than those of the majority of Lilacs. We have a large bush growing on a steep bank, and in that position it looks extremely well when seen from below, as the weight of the flowers slightly bends the shoots. *Persica*, *Dr. Lindley*, and *President Grevy* are also good single varieties, and among the double flowered the following are excellent:—*Emile Lemoine*, *La Tour d'Auvergne*, *Michael Buchner*, and *Virginal*.

should be deeply trenched, and a little manure worked into the lower strata as the operation proceeds. Then, when planting is finished, a mulching of manure or leaves ought to be placed upon the surface, with the twofold object of preventing injury through drought in summer time and of encouraging the production of surface roots. Much of the planting to be done in shrubberies is, however, of a different nature, and consists of clearing away old shrubs to make room for the introduction of flowering ones to give colour, or of planting standards at intervals to break up the outline, and thus improve the appearance of existing shrubberies.

If success is expected in these matters no half measures should be tolerated. For standard trees holes from 4 to 6 feet in diameter and 3 feet in depth ought to be dug, so as to give the young trees a good space free from the roots of surrounding ones. A layer of manure and leaf soil should be placed in the bottom of each hole,



FIG. 39.—STAPHYLEA COLCHICA.

Viburnum Opulus (Gueldre Rose), and the dwarf form, *Weigela rosea*, *rosea alba*, and *rosea carminea* complete my list of deciduous flowering shrubs. To some it may seem a lengthy one, but all should be grown wherever room can be found for them, and I feel sure we should see a greater variety in many gardens if those in charge fully realised what a wealth there is to select from.

PLANTING.

It is not often that spring planting can be done under such favourable conditions as those that prevail at the present time, the heavy rainfall during the autumn and winter months having thoroughly moistened the soil to a great depth; and yet so great was the need of moisture that I find our light soil is in exactly the right condition for planting—viz., damp enough to preserve the necessary plumpness in fibrous roots, and yet not wet enough to become "pasty" under the planter's tread. Under such circumstances, of course the proper thing to do is to push on with all possible speed the planting of trees and shrubs of all descriptions, instead of tempting fortune by delaying the operation.

Where new shrubberies or clumps are being formed the ground

and then covered with soil to a sufficient depth to bring the surface roots of the tree to be planted almost up to the ground line, deep planting being an evil to avoid, as also is that of placing manure near the roots of newly planted trees. Other details which require attention are to remove the point of each root with a sharp knife, to spread each root out carefully in such a way that the young fibres may take hold of the soil without coming directly in contact with its neighbour, to tread the soil moderately firm, and to stake securely.

When the roots of trees are found to be very dry on arrival from a nursery they ought to be immersed in water for an hour or so before being planted. At this season newly planted standards ought to be pruned back to two or three eyes, to enable them to make a strong start. In the case of large bushes of such shrubs as *Syringa*, *Ribes*, and *Deutzias*, instead of pruning back each shoot the old branches should be removed and very strong ones shortened to half their length. Numerous suckers are then produced, and but little after-pruning is required for some years. I hope to complete this series by a note on evergreen trees and shrubs.—H. DUNKIN, *Castle Gardens, Warwick*.

EELWORM ERADICATION.

IN order to meet Mr. Bradley's request for information on this subject (page 118), I considered it advisable to compare my statements in the *Journal of Horticulture* with the records of the experiments, and thus ascertain if there were anything to make clear "respecting eelworm in Cucumbers and Tomatoes, and proposed remedies." After carefully going through the evidence I find a complete agreement in substance and in fact between the records of the experiments and the statements, therefore see no reason to amend or reverse anything in the judgments.

Nevertheless, as some growers may not have clearly understood the statements in respect of the proposed preventives and remedies, I will endeavour to "write on maladies and remedies in a way we can all understand." This, as far as I understand Mr. Bradley, means the avoidance of technical references and strict adherence to plain clear terms, for, as Mr. Bradley puts it, "In these days of keen competition we cannot afford to do much experimenting, and then find supposed remedies useless, as in the 10 per cent. of lime treatment. In my experience Tomatoes or Cucumbers could not survive such treatment. I found them dead in twenty-four hours after applying 10 per cent. of lime to soil that Professor Gilchrist pronounced deficient in lime previous to using it."

Why Mr. Bradley refers to the "lime treatment" solely is not "clear," unless it be to connect my statements with those of the talented Professor. I accept the reference as a compliment, and as evidence that there are some of those "unfortunately born too soon for participating in the advantages of such education as is available now in any art or science that a youth may wish to study," who may by self-help grasp the teaching of Science and apply it to practice in a manner totally beyond the grasp of the absolute theorist.

There is no way to acquire useful and reliable information but by work, and no amount of writing in "plain clear terms" will make anything "easily to be comprehended" by idle readers. That is my experience, also that "the best of teaching and the most appreciated" combines science with practice. Indeed, the latter without the former is nothing more or less than a muddle. Instance Mr. Bradley's statement—"Not only does eelworm attack Cucumbers and Tomatoes, but Cyclamens, Primulas, and Carnations suffer from its depredations."

Now, according to such statement we imply the same eelworm, similar preventive and remedial treatment. But Cucumbers and Tomatoes are only infested at the roots, while Cyclamens, Primulas, and Carnations may be attacked both below and above ground. What is there in practice to show that the eelworm is the same in both cases? Absolutely nothing; yet the eelworm may be identical, and the treatment answer in either case. On the other hand, the eelworm on the Cucumbers and Tomatoes may be "root," and on the Cyclamens, Primulas, and Carnations "stem" eelworm. What is the good of practice in such cases? It is guessing at things, which wastes time, labour, and money. Science defines, combines with practice, and makes sure.

In Cucumbers and Tomatoes I have found three forms of eelworm—"Stem," causing nodosities on the roots, chiefly at the extremities; "Blunt," inducing the decay of the root stem, often without producing excrescences, and seldom doing more than "clubbing" the roots; "Root," producing nodules on the roots and swellings on the root stem.

The "stem" eelworm leads a free life in the soil and decaying organic substances, is a parasite only for breeding purposes, not always that, and found in every soil containing dead organic remains. It attacks Onions, rendering them "fuzzy," Cucumbers, Tomatoes, and Vegetable Marrows, in addition to its beloved Clover. The "blunt" eelworm also leads a free life in the soil, and lives on decaying organic substances or their solutions, and attacks Cucumbers, Tomatoes, Gardenias, Cyclamens, Primulas, and Orchids, always at the roots or root-stem. The "root" eelworm roams in the soil when not engaged in breeding, thrives on decaying organic matter or its solution, and infests Cucumbers and Tomatoes at the roots only as a parasite. The period of gestation is one month, and may occur at any period of the year in a hothouse. If the root-plant be killed by the first attack, as young Cucumber plants often are, the larvæ produced in the month may survive in the soil for an indefinite period, living on organic matter in a state of decay or in solution. Whether they can breed otherwise than parasitically I have not been able to ascertain, but there is no reason why, as both "stem" and "blunt" do.

Neither of the three can live in perfectly dry air or soil, survive the ordeal of freezing stiff, nor bear heat over 125°. This I hope is "plain" enough for "Market Grower." I know it does not accord with the mysteries science (save the mark) sometimes wraps around these and other micro-organisms, but I prefer Nature to second-hand natural history.

Thus we arrive at preventives and remedies on a broad and substantial foundation—the eelworm, according to our old friend Mr. Iggulden, is "always with us." The Romans grew Cucumbers, as did the ancient Egyptians before them, and we have grown them in this country for centuries without knowledge of eelworm. Indeed, until the late Rev. M. J. Berkeley detected eelworm in the nodosities of Cucumber roots we were as ignorant of its existence as either the Egyptians or Romans, whereas the geological records show that it must have existed in primordial times.

Why the eelworm has been so much on evidence in recent years may be due, as Mr. Iggulden says, to departure from correct methods of culture, especially in growing for market. Be that as it may, there has certainly been an alarming increase of the pest, and quite as many cases of infection reach us from private as from growers for market, which is not remarkable, as many so-called private growers grow Cucumbers and Tomatoes more for marketing than home consumption, and have adopted market growers' methods. This is a very important consideration from a cultural point of view, as where the old method—the sweet soil and hardy plant—is followed there are few cases of eelworm infection as compared with the express system—the rich soil, sogged and rotten plant.

Under the old régime the soil was never used fresh cut, but always stacked long enough to kill the herbage the turf was cut with, and sometimes each layer was sprinkled with freshly slaked lime to kill wireworm, hasten the decay of the grass, and sweeten the soil, often along with soot to enrich the loam and expel pests. Thus I have known a mixture of equal parts air-slaked chalk lime and dry soot by measure used at the rate of half a pound per square yard, each layer of turves as placed grass side downwards receiving its proportionate share, the thickness being 1 foot for each half pound of lime and soot mixture per square yard, or for a cubic yard 1½ lb. That for rather strong soil, and for light soil turf 4 ozs. of kainit per square yard of 1 foot thickness, 1 oz. on each layer of turf 3 inches thick, and a handful of soot, or four handfuls for the foot thickness.

Either of those after being stacked from late summer or early autumn formed excellent composts for Cucumbers, Melons, and Tomatoes, and the plants were not affected by any micro-organism at the roots. If the loam were not considered rich enough about one-fourth of sweetened horse droppings, which meant sweating the life out of any eelworms that had passed through the animal's digestive canal, was added to the rather strong loam, and one-third to the light soil. These practices, except the kainit, are as old as the English horticultural Adam, and as good now as ever. When kainit was not used, for this is an excellent device of the late Dr. Voelcker, wood ashes, twice as much as of soot, were used with the light loam in stacking, so that there was nearly the same, and in some respect a better compost.

The foregoing remarks will enable those "born too soon for participating in the advantages of such education as is available now" to understand old methods, and compare them in principle and in substance with the new and raw. This, as far as I can see, comprises Mr. Iggulden's "little sensation." He blends the old with modern practice in such manner as to secure a compost as free as may be from eelworm, and so compounded as to produce a healthy, sturdy, fruitful plant on the express system. This breaks down sometimes; then Mr. Iggulden needs assistance—some physic for his plants, such as Little's soluble phenyle. Just so; and its success or otherwise depends not upon "faith," but upon its efficacy, and that on administration according to the instructions.

This brings me to the 10 per cent. of lime treatment. I cannot understand its failure, not in killing eelworm, but the plants in twenty-four hours. Either it was magnesian, or if chalk or a good land lime, such as an analysis is given of on October 29th, 1896, page 424, mixed with the soil and the plants set in it shortly afterwards, perhaps at once, instead of letting lie for a considerable time, say from removing old plants in the autumn to replanting time in the spring, or from mixing with stacked turf in autumn to its use for the earliest planted Cucumbers or Tomatoes in the following year. Something was wrong somewhere, and I am certain it was neither chalk nor good land lime.

As regards my making my statements on Cucumber and Tomato diseases more clear than I have hitherto attempted, I must express my inability. By them as given in these pages, October 22nd, 1896, page 401, I am content to abide, especially the corrosive sublimate solution as a drastic preventive or remedy, and the soluble phenyle as in no wise dangerous, and giving value for expenditure as a manure. Next to this the kainit and nitrate of soda, and for unrivalled cheapness and efficacy boiling water as a disinfectant of soil and houses, and water at a temperature of 145°. This I advise caution with, but it is easy to try it on a few plants, ascertaining the safe heat before applying it on a large scale.

Where labour is a consideration, and fuel dear, the hot water cure is not nearly so economical as Little's soluble phenyle.

The whole are sound—corrosive sublimate the most drastic in effect on the eelworm, but gives nothing to the plant, and is a dangerous poison, therefore I abandoned it in favour of Little's soluble phenyle, and have striven as far as able to place before growers simple preventives and remedies, and ask nothing at their hands but a fair trial on intelligent principles, such as they exercise in their cultural treatment, and perhaps know more about than I do. If they wish to go farther—and I would urge them to proceed only in the direction of that which profits the plants as a manure as well as destroys its enemies—I would point to aniline and naphthaline, keeping within the substances which are compounds of carbon, hydrogen, and nitrogen, and remember that soluble only are safe, and the elements readily available as food of plants. Out of either aniline or naphthaline it would be easy to prepare a proprietary article, but I am content with phenol in the soluble form, and for economic considerations advise its use.—G. ABBEY.

AN OLD AND FRUITFUL GARDEN.

LIKE not a few old fashioned folk, I enjoy a saunter through a garden of the olden type. Not only flowers hardy, beautiful, and fragrant, but fruit and vegetables must grow there, and there, too, I must find the olitory—that garden of simples that our grandmothers were wont to haunt. It happens, fortunately, that I know at least one such garden, and to me a somewhat famous one. It is situated about a score miles west of Charing Cross, on a side slope of a hill, facing south. The charms and interest of a garden are greatly enhanced by its surroundings. To be able to change the focus of vision—to lift the eyes to a distant horizon, whether it be over rolling cornfields, green meadows, or towards empurpled hills; or better still to peep through bowers of Honeysuckle and Roses at a hundred leagues of blue sea, overcanopied by a wider horizon, one enjoys the garden so much the more.

It is not the Italian flower garden that I am about to describe, although that is beautiful, nor the spacious pleasure grounds, but a plot some 6 acres or more half contemptuously designated as the kitchen garden. Now there is a quiet beauty in carefully cultivated vegetables. There is not much to admire, perhaps, in the growth of that homely tuber the Potato; but glance for a moment at that big, green Rose the Cabbage, while the early dew-drops are shimmering in their emerald cups; or the graceful Kail that suggested to the architect the Greek Capitol. Then look at the elegant outlines of the Runner Bean and Pea, of the noble leafage of the Gourd tribe, and the classic elegance of the Celery and Leek. Were these not edible they would have long since have been prized and grown in our gardens on account of their beauty of form.

But let me attempt to describe the genesis of this old garden. Over a century and a half ago two elderly men might have been seen on the terrace of a noble house, once a residence of the unfortunate Monmouth. In front is a beautiful Italian garden, with its statuary and fountains; beyond it a little army of labourers are at work in making a great lawn with sloping woods on either hand. The object is to afford a distant view of the North London heights and a glimpse beyond to the right. After a few minutes they turn and walk up the hill beneath some ancient pollard Oaks. Bluff Harry and Catherine his Queen, when on a visit, would walk that way at times; and a still more famous man, Cardinal Wolsey, would be seen accompanied by a splendid retinue. He would be seated for a time beneath a tree that is still called the "Cardinal's Oak." Of the two elderly men one is Commodore Anson, the other the famous landscape gardener, Capability Brown.

They are about to determine the site of a new kitchen garden. Aspect, drainage, and soil are the desiderata, and here on the slope of the hill they have all three. In front, looking south-west, are just discerned the grey towers of Windsor Castle, and along its base the misty grey line denotes the Valley of the Thames. Sheltered from north and east, open to the south and west, with natural drainage and rich friable loam, here surely is the spot! And that is the garden I shall attempt to describe. I have traversed its broad, smooth, flower-margined paths many a time. It is entirely surrounded by walls and intersected transversely by other walls, the main purpose being protection and wall space for fruit. It was here the famous navigator, Commodore Anson, after ploughing the sea, with the assistance of "Capability Brown" began to plough the land.

The garden is of oblong shape, and all the walks are parallel, or at right angles to each other, with borders of herbaceous plants on either side. No ribbon border of so-called bedding plants could vie for a moment with the interest and beauty of these borders. From Christmas Rose to Chrysanthemum; from Snowdrop,

Daffodil, and Anemone; Pæony, Hollyhock, and Phlox; Delphinium, Hydrangea, Foxglove, and huge Fuchsias to Michaelmas Daisies, which used to be sent by the old Earl and his lady to cheer the inmates of hospitals. Then, of course, there are beds of Roses, Carnations, and Lilies; and just as the Roses are in bloom we—no, his Lordship's family—have only to step over the border to luxuriate in the most delicious Strawberries. Here they are in abundance, from Keen's Seedling to La Constante and Royal Sovereign. And then, what a feast of the plebeian Gooseberry is there in the season! and, as in the case of Strawberries and Currants, protected by means of careful netting. In the more sheltered parts of the garden are quarters of Cherries, Plums, Apples, and Pears. Most of these trees are pyramids, from fifteen to twenty years old; and among them, as one may see by the label, are the choicer sorts, added by Mr. Mundel, the late highly esteemed head gardener, as they came out. Of Pears there is a fine collection. Along the upper walk by the houses is a row of dome-shaped trees, the branches trained down. They are a feature in the garden, although several of the kinds, among them Marie Louise and Beurré Diel, do not take kindly to this kind of training. The trees were about 8 feet high, and from 5 to 6 feet through. They are very handsome when in flower. Both the Apples and Pears are beautiful objects in blossom—no two blooms precisely alike. Beautiful as these trees are in April and early May, they cannot vie with the Cherry, and more especially the Morello Cherry, whose silver bells the bees are ringing from dawn to sunset.

It is difficult to understand the prejudice against fruit trees in the pleasure ground. There are few more delightful objects on a lawn than a well-furnished Apple tree; and, indeed, there are few more beautiful trees for flower and fruit.

The first long range of glass is used as a fruit house—for Peaches and Nectarines mainly. It is an agreeable surprise when one steps out of the keen March air into such a little world of sunshine. The masses of lovely pink blossoms are open then; there is the suggestive fragrance, and the soothing hum of hundreds of bees busily at work. The gardener, as a rule, thinks little of the value of these humble creatures. Without their aid in fertilising the flowers he would look in vain for the crop that follows. George Herbert has some quaint lines on the bee that may not be known to some readers:—

"Bees work for man; and yet they never bruise
Their master's flower, but leave it, having done,
As fair as ever, and as fit for use;
So both the flower doth stay, and honey run."

This is scarcely the truth, by the way. In some species of flowers the petals drop soon after the blossom is fertilised, so rapidly is the function completed.

It is probable that the fruit grown on the walls here during the past half century would, if sold, have paid more than thrice over for the cost of the walls. Peaches, Nectarines, and Apricots are grown by thousands. The bloom on the open walls is protected from frost, and there is scarcely ever a failure.

Much more might be said of this fruitful old garden, of its fine crops of Muscats and Black Hamburgs, its Figs and forcing houses, and plants, and also about the pretty geometrical garden close to the entrance to the second garden. If the old Commodore and Capability Brown could visit that spot once again it would gladden their eyes to see their labours matured, the garden still flourishing in its green old age.—HERGA.

OUR HARDY PLANT BORDER.

(Continued from page 153.)

SWEET WILLIAMS.

THESE old garden favourites, which in some districts may be seen near almost every cottage, are still worth a place wherever beautiful flowers are prized, though they are specially adapted for certain positions. For example, where there are narrow borders skirting a shrubbery they make a good margin, while we have also had them as a margin for large circular beds, the central portion of which has been devoted to sub-tropical plants. They are not adapted for beds laid out in geometrical design, nor for any elaborate series of beds on terraces in view of the mansion, unless they can be removed immediately after flowering and their places filled with some other suitable plants. In very hot seasons and dry situations they last but a comparatively short time in flower, and the tall seedy stems then have an untidy and dreary appearance. For lines and masses, however, in less conspicuous places they are unquestionably most useful, and they have much to recommend them for general cultivation.

One of the reasons that induced us to include them in our collection was because they are easily raised from seed, thus.

enabling us to secure some thousands of plants to form large beds in the long border we had to fill. When the varieties of Sweet William (*Dianthus barbatus*) were distinguished by names like other florists' flowers, increase by cuttings or layers was necessary, and raising a large supply was a rather tedious business; matters are very different now, however, for the attention paid to the improvement of seed selection has resulted in a great advance. It is no exaggeration to say that from a packet of the best seed, such as that sent out by all the leading houses, it is possible to have numbers of varieties quite up to the old florists' standard as regards size, regularity, and colour of the flowers.

Familiar as we have long been with the advance made in the mixed seed strains of popular flowers, we have repeatedly been astonished by the high quality of the seedling varieties thus obtained amongst Sweet Williams. Many a bed we have had that presented quite a study in itself, both for range of variation in colouring and size; the individual flowers even and bold, the trusses large, compact, and effective. Because they are "common" flowers, they are yet by no means "common" as regards their attractions, and few of the easily grown plants present so many characters worthy of note. Nor is it only at the flowering time that the plants are worthy of notice, well-grown bushy specimens are ornaments in a border throughout the winter months. The vigorous healthy growth is in a measure the cause of this, but the tints assumed by the leaves are the chief feature.

The dark and light coloured flowers are respectively attended by dark and light foliage, and in the former case the leaves become of a rich bronzy red that is singularly effective when there is little colour in the hardy plant borders. In contrast with the dark red shades we have various tints of green, some being exceptionally bright and lively, very distinct from the ordinary greens of winter foliage, and more resembling the fresh hues of spring buds. Such are some of the attractions of these plants, but no one can grow them in quantity and with the object of studying them without discovering other qualities of interest.

The seed should be sown as early in May as possible, in fact similar treatment to that needed by Wallflowers is requisite, but we have found this difference—namely, that far better plants result from seedlings only once transplanted than from those which are shifted twice. The sooner the seedlings can be placed in the permanent quarters when they have made sufficient advance in the seed bed to be easily lifted the better is the growth produced before winter checks their progress. It is also important to sow the seed thinly, and even then it may be desirable to thin the seedlings, as any approach to a drawn, weakly condition must be most carefully avoided from the first.

A well-dug but moderately firm soil, enriched by a liberal dressing of old farmyard manure some time previous to planting, is the most suitable for producing strong plants, but a slight additional dressing of superphosphate (about half an ounce to the square yard), applied in December or January when the weather is open, has resulted in the production of finer trusses and flowers than where this was omitted. We have also thought that the colours have been both richer and clearer where this mineral manure has been used. Without the farmyard manure double the quantity of artificial has not produced quite the same effect, except in cases where the soil was fairly rich from the residue of manure left from previous crops. Nitrate of soda appears to be too stimulating for Sweet Williams, for though tried at various times and in different quantities the results were not so satisfactory as where the plants were allowed to make a more natural and sturdy growth. If once they become "drawn" they are comparatively useless.

ARABIS ALBIDA.

The early flowering pure white Arabis is most valuable for an edging to large borders, and we have raised many thousands from seed sown in late spring or early summer which produced excellent plants, that were flowering profusely by the end of the following February. So vigorously do the plants grow in our soil and under the particular treatment tried, that several friends well versed in hardy plants have failed to recognise this as the ordinary Arabis alba when it is not in flower. The leaves are considerably larger than the usual type, the plants forming cushion-like tufts about a foot in diameter and the flowers large, and produced on stout stems quite clear of the foliage. At the present time (February 24th) some of these are flowering most abundantly, and we have counted as many as 150 spikes on one plant.

The seed has been sown at various times, from April until early August, and in fine autumns good plants have been secured from the later sowing for flowering in the following year; but when the time can be devoted to "pricking" out the seedlings as soon as they are ready, the April sowing gives the best results. This also enables the young plants to recover themselves before the heat of summer is upon them—an important matter, for though this plant

will grow and thrive upon rockeries, yet in the young state a dry situation or soil seems to be positively injurious. Upon the edge of a raised border the plants grow admirably, extending to the path level, as while being moist and cool excessive rain can readily escape. Superphosphate has a surprising effect upon this plant when used only at the rate of half an ounce per square yard, and after trying it several times upon plants, in contrast with others that received nothing in the shape of manure, we always employ it now.—A COUNTRYMAN.

(To be continued.)

CHEMISTRY IN THE GARDEN.

(Continued from page 90.)

HAVING in the previous articles briefly described the elements found in plants, let us now turn our attention to the substance known as soil. In considering soil we shall find it necessary to turn on side lights from other sciences, for the purpose of giving more illuminating power to our thoughts on its chemistry.

THE ORIGIN OF SOILS.

Astronomers tell us that millions of years ago our earth existed in space as a mass of glowing gas. Gradually this gas parted with some of its heat by radiation, and as the temperature fell some of the substances which were in the gaseous state condensed, and became liquids similar to molten lava. On further cooling the liquids became solids, and so formed the primary rocks of the earth.

After the first rocks were formed, the earth was no doubt so hot as to make it impossible for water to exist, except as watery vapour (steam) in the atmosphere; but as the temperature of the rocks gradually decreased the vapour condensed into water and descended to form rivers, seas, and oceans. There are still some gases left surrounding our earth—namely, those which constitute our atmosphere; but any of these can be made to assume a liquid, and even a solid form, by subjecting them to a very low temperature. The primary rocks consisted chiefly of granites, syenites, and basaltic rocks, and when first formed were of a more or less crystalline character. Our object, however, does not lie so much with the geology of the rocks as with their chemistry, so before proceeding we will give the chief constituents of which they are composed. The granite rocks generally consist of the three following substances—quartz, felspar, and mica.

QUARTZ consists of but two elements—namely, silicon and oxygen. By the decay of the granite rocks the quartz would be liberated as grains of silica or sand.

FELSPAR is composed principally of silicates of alumina which are present in chemical combination either with potash, soda, or lime. There are, however, nearly always traces of magnesia, oxide of iron, and phosphoric acid also present.

MICA is not unlike felspar in composition. It consists chiefly of silicates of alumina in combination with magnesia or potash. There are large quantities of oxide of iron also present; but soda, lime, and phosphoric acid are entirely absent.

SYENITE is a variety of granite, in which there are but traces of quartz; and the mica is replaced by hornblende.

HORNBLende consists principally of silica, iron and lime, together with smaller quantities of alumina, potash, soda, and phosphoric acid.

BASALT is a dense heavy dark coloured rock, consisting either of a mixture of felspar and hornblende, or felspar and augite; the last named being a substance formed by the union of silica with magnesia.

Seeing what very important substances felspar, mica, and hornblende are in the composition of rocks, we think it advisable to give the chemical composition of the three minerals just named:—

ANALYSIS OF MINERALS.

		Felspar.	Mica.	Hornblende.
Silica	...	65.72	46.36	43.45
Alumina	...	18.57	36.80	6.52
Potash	...	12.32	9.22	2.86
Soda	...	1.25	none	3.27
Lime	...	0.34	none	10.25
Magnesia	...	0.10	3.09	3.56
Iron Oxide	...	none	4.53	29.98
Phosphoric Acid	...	1.70	none	0.11
		100.00	100.00	100.00

These analyses show us what a large quantity of silica and alumina there is present in the minerals, and also what a large amount of iron oxide hornblende contains. The large quantities of potash in felspar and mica, and the 10 per cent. of lime in hornblende is also very noticeable, showing us that the first two named

minerals would form a soil rich in potash but poor in lime, while the last named would form a soil poor in potash but rich in lime.

By the action of the disintegrating agents, which we shall consider when dealing with the formation of soils, the exposed surface of the crystalline rocks was broken down, and the loosened particles were carried by rivers into the sea, where they settled down to form sedimentary rocks. We have therefore two classes of rocks—namely, the primary, formed by the action of fire, and known as igneous (Lat., *ignis*, fire); and the sedimentary, formed by the action of water, and called aqueous (Lat., *aqua*, water). Another very important class of rocks, formed after those just named, are the limestones and peat beds. The limestone rocks were formed by the deposition of shells and other calcareous matter in the ocean, and the peat beds were formed by the accumulation of vegetable matter in wet situations.

The sedimentary rocks, after being under water for thousands of years, were raised and became dry land. All the exposed parts of rocks are constantly being attacked by the various disintegrating agents which pulverised them, and the material thus formed may be looked upon as rotted rock or soil. Soil, then, is the name given to the more or less powdery substance which we find covering the surface of rocks.

On page 91 a correspondent signing himself "Henri" calls my attention to a paragraph on page 47, which he says "seems wrong." The portion referred to is as follows:—"During growth certain chemical changes are taking place during which oxygen is absorbed and carbon dioxide is exhaled." Your correspondent, after quoting the above passage, asks two questions—viz, "(1) Is it so? and (2) Should it not be, Carbon dioxide is absorbed and oxygen exhaled?" To the first question I answer, Yes; to the second, No.

By again turning to page 47 your correspondent will find that I say in the next sentence to the one which appears to him to be wrong, "This interchange of gases is called the 'respiration' of plants." Plants also absorb carbon dioxide (CO_2) from the atmosphere, and, under the influence of sunlight and the chloroplastids, this gas is broken up, the carbon being retained and the oxygen exhaled. This interchange of gases is known as the "assimilation" of plants, a subject which will be subsequently dealt with.

Now, my friend, again take up your "Oliver's Botany," and see what he says about the respiration of plants, and I think you will find that the statement on page 47 is perfectly correct.—W. DYKE.

A GARDEN IN THE ISLE OF WIGHT.

[An Address (amplified) by Rev. H. EWBANK to the members of the Horticultural Association at Newport.]

(Continued from page 141.)

It has been such an absurd attempt on my part to give representative flowers for the different seasons of the year that I feel I must now withdraw from it altogether. Time and space are against me, and the Eremuri, the Calochorti and Ixias must not be offended if they are passed over in silence. I only wish to say a word about rock plants, for they have a great attraction of their own. It is wonderful that they succeed as well as they do when we consider how different are the conditions under which they grow naturally from those under which they are here. In Switzerland and other countries they are buried deeply in snow for many months of the year, and then they are exposed from June onwards to most brilliant sunshine and long stretches of settled glorious weather. Here in England they are teased by snatches of fine weather, which make them grow prematurely, and at the wrong time of the year, and then all of a sudden frost and snow come on them in an utterly unprotected condition, and they have first one thing and then another against them all the year round. It is in summer often worse for them than in winter, for the sun has a power here which some of them are scarcely able to resist.

Still they get on somehow, as I have said just now, for there is a wonderful power of accommodation in plants, and they prosper far better than one could have thought of before the trial was made. In one way and the other I must have 5000 plants in my rockery, according to a computation which my gardener and I made a short time ago, for it is impossible to tell with certainty about it.

A condition for success is that the roots should run back a very long way, and derive sustenance from hidden stores of nutriment which are far away out of sight. Thus a plant 1 inch high will go forty times deeper than it will venture to appear above ground, and when you wonder how such a gem as *Eritrichium nanum* in Switzerland, or elsewhere, can stand the summer sun, it is sometimes forgotten that it draws upon hidden stores of food by its long and tiny rootlets. Then, again, stones on the mountain sides, and the *débris* of ages prevent evaporation. The state of things in England during the summer is often very much dried up, and mischief must sometimes be prevented by a mulch of leaf mould and silver sand, and by a coating of small stones, which does great good.

Very often it is good practice to grow a plant in a horizontal position. It sends the water off the foliage, and keeps it from rotting better than anything else can do it. Thus *Lithospermum graminifolium* and *Ramondia*

pyrenaica (fig. 40) submit to treatment of this sort, as may be seen in Kew Gardens with *Ramondia*, and there is great gain from it. But, of course, the first thing in growing alpine is to consider what sort of home you can give them, and this is a matter which involves considerations of taste, and also of space and money. There are two kinds of rockeries in this country, and none other need be considered. One is where everything is made to give way to the appearance of the rockery itself, and a miniature Mount Blanc or Monte Rosa is contemplated, and this let me say is for the most part very expensive, and whensoever it is badly done it can be very cockneyfied. It also takes a great deal of room to carry it out at all with effect.

The other way, and it is that which I exclusively advocate myself, is to give up all ambitious projects entirely, and to consider not what you think good and beautiful yourself in the way of a rockery, but what the plants themselves would like, and how best they are to be treated. The



FIG. 40.—RAMONDIA PYRENAICA.

sort of rockery which I allude to is something in the way of that which obtains in the Royal Botanic Gardens in Edinburgh. It is in no sense whatever an imitation of a mountain range, but it is a good and fitting receptacle for plants, and that is all that is wanted. My rockery looks more like an old crumbling ruin than anything else, and visitors have often compared it with an old Roman amphitheatre, which it does in a way resemble.

The advantages are these:—A construction such as mine costs a great deal less than an artistic rockery. From first to last I do not suppose that I have spent more than £40 or £50 on it, whereas thousands can be easily poured out in the other way of making mountains to order. I have innumerable little square pockets here into which the plants lovingly nestle, and where they can be watered with effect, which is a very great point in summer time, and on this account they prefer level spaces to an inclined plane. Moreover, there are a great variety of aspects, and shade is more easily procured than in any other way; and also the differences of taste in the way of soil can be accounted for. It is true that before it was properly clothed the whole thing looked very bare and unsightly, and many hard things were then said of it; but that is not at all the case now, when results have declared themselves.

The proof of the pudding is in the eating, and I invite you all to come and inspect my rockery whenever you like. A low wall surrounds it of about 2½ or 3 feet in height, and there are innumerable holes and interstices made in it by the simple expedient of leaving out every alternate brick, which exactly suits some alpine plants.

I must say a word about a very practical matter which I think should concern Islanders very much; it is the most important part of the address which I have the honour to make to you. I refer to the adornment of our houses and churches and public buildings all over the place with climbers, and our gardens with shrubs, which for the most part at present have no place in them at all. Few persons in the Isle of Wight know what its wonderful capabilities are, and the reason is because they have never tried them. We go on in a very fixed, stereotyped sort of way, and we miss the variety, the interest, and the beauty which might so easily abound. Since I have been living in the island—and it is now forty years since I came to it—I have only known three persons who really took this matter to heart, and can be said to have studied it. Dr. Salter was one, who was the co-editor with Mr. A. More of the "Flora Vectensis." Sir Lawrence Peel was another, but he was principally devoted to trees; and Sir W. Hutt was the third.

I do not, of course, say but that there are many lovers of flowers in the island. Mr. Jeans and Mr. Spittall might be mentioned at once, but so far as I know their strength is mainly devoted to growing Roses for exhibition, which is a very different thing from what I am speaking of. What I desire is to find out what will live in the island, and what will not live in it. It is absurd to have no better selection than may be found in Northumberland or Durham, and yet how seldom a new shrub or flowering tree is introduced into the place. There is the same eternal round of *Passion Flowers*, *Clematis montana*, *C. Jackmanni*, *Cotoneasters*, and *Myrtles* wherever you go. Now these, though very good in their way, are not everything that will grow in the Isle of Wight; nor are they the highest form of ornament which the place will admit of. There is an immense fund of beauty and brightness on which we can draw if we like, and it is our own fault if we stick to a very narrow circle indeed, and never go beyond it.

(To be concluded.)

A CALL AT PENRHYN.

CALLING at these gardens recently I was much interested in some fine examples of the above comparatively new Grape. The bunches had been cut from the Vines and were arranged in bottles in the fruit room, and excellent samples they were, with large berries, reminding one of a white Gros Colman. The quality is good for a late-keeping variety, and where white Grapes are in request late in the season it should prove invaluable. Mr. Speed's opinion is that it requires heat to bring it to perfection like all white Grapes. Evidently its successful treatment is understood at Penrhyn.

By the side of Lady Hutt were arranged some handsome bunches of Muscat of Alexandria; surely they must have been from 3 to 4 lbs. weight, of beautiful finish, and with that appearance of excellent condition that all well-grown examples preserve. Lady Downes' Seedling was equally good of its kind. The wood of the Vines looked promising—Mr. Speed's faggots—jocularly so called from the methods this able cultivator pursues of constantly working in young wood from bottom to top, a sort of compromise between the long-rod and spur-pruning systems. Mr. Speed's opinion is that it maintains vigour and longevity in the Vine, and judging by the results, and the age of the Vines, many of which are from forty to fifty years old, there is ample food for reflection, when one often sees vineries replanted several times over in less than that period.

It was my pleasure to see here one of the grandest batches of Queen Pines I have ever come across—fine sturdy fellows, that gave promise of something superb for the London season, such plants of which any man might well feel proud. A house full of useful late Chrysanthemums was noticeable for their beauty. Forcing plants and flowers were in plenty, while in the Mushroom and forcing houses was abundance for the inner man.

All occupants under glass were well in hand, ready for their respective seasons, noteworthy by the cleanliness and order everywhere prevailing. Outside the same painstaking care and energy was apparent, the bold and skilful planting being highly interesting, even during midwinter, amid a driving storm of sleet and snow. In the flower garden, on one of the walls, was *Lapageria rosea* carrying sundry blooms—a novel sight under the conditions.

It would be unfitting to close these few notes without referring to the residence recently erected for the young men in the gardens, fitted up with every consideration for their comfort and convenience. They will, I am sure, fully appreciate Lord Penrhyn's kindness and thoughtfulness in erecting this splendid building for his employes. So ended my call at Penrhyn, always interesting with its bold grandeur and diversified attractions, so well kept by the straightforward practical man who so skilfully controls it. My sincere thanks are here tendered to him and all of his for their kindness to a wanderer on the way.—J. J. CRAVEN.

VIOLET MARIE LOUISE.—I am sending a small bunch of Violet Marie Louise which have been taken from plants growing in a cold frame. We have been picking from the same plants since September last.—JAMES HOUNSLOW, *Headfort Gardens, Kells, Co. Meath*. [The blooms were of exceptional merit, and perfumed the sanctum for several days.]



MRS. JOHN LAING AND MRS. R. G. SHARMAN CRAWFORD.

THERE are not many Hybrid Perpetuals that have reached the distinction or enjoyed the popularity of Mrs. John Laing. Perhaps its only rival among Roses of its class is the almost invincible A. K. Williams, the most beautiful in colour and the least faultless in form of Hybrid Perpetuals, generally supposed to have been a derivation from that great beauty Alfred Colomb. Another of its rivals, the fragrant La France, has been relegated to the new race of Hybrid Teas.

Raised by Mr. Henry Bennet in 1887, Mrs. John Laing rose rapidly into eminence, and has for many years been a supreme favourite with Rose cultivators, and especially with exhibitors. Its merits are so great, it has so many attributes of the highest description, that it is of equal value for the decoration of the garden and for effective exhibition. I presume that few first prizes have of late years been won at the Crystal Palace by the great English rosarians without its assistance. Madame Gabriel Luizet, notwithstanding its sweetness, has been almost eclipsed.

There is, however, an Irish Rose which, by reason of certain important characteristics, promises ere long to prove a worthy rival to Mrs. John Laing. I refer, of course, to that beautiful and free-flowering Hybrid Perpetual entitled Mrs. R. G. Sharman Crawford, raised by Messrs. Alexander Dickson & Sons, of Newtownards, in 1894, regarding which, and its relation to Mrs. John Laing, a distinguished rosarian who has made a special study of both varieties, and grows them extensively, writes to me as follows:—"I do not think there can be two opinions regarding the high merits of Mrs. R. G. Sharman Crawford. Only in one point can Mrs. John Laing surpass this variety, and that is at times a question. I take the point of individual blooms, and here, when the English Rose is at its best, it would beat the Irish one; but on all other points Mrs. Crawford quite eclipses Mrs. John Laing—viz., in habit of growth, colour, and floriferousness. Indeed, with the exception of Mrs. W. J. Grant there is no Rose more free flowering in the Hybrid Perpetual and Hybrid Tea sections."

A pure pink H.P. with the colour of Bridesmaid (which would, I feel certain, greatly charm John Ruskin), and the beautiful form and graceful habit of Mrs. Sharman Crawford, would be a great acquisition; a very near approximation to perfection.—DAVID R. WILLIAMSON.

THE YOUNG GARDENERS' DOMAIN.

CONSERVATORY MANAGEMENT.

(Continued from page 146.)

FUCHSIAS and Coleus will be the next tenants for the conservatory. Old plants of Fuchsias which have been resting during the winter should be started in February. When they have commenced growing repot in a rich compost. When the shoots are about 3 inches long take out the points. This operation can be repeated about May, keeping all the flowers pinched off in the meantime to insure stronger growth. Afford a liberal supply of liquid manure, and by the time they are wanted they will be splendid plants. Smaller plants may be raised by striking cuttings in September, afterwards placing them on a shelf in a cool house for the winter, potting in spring. Cuttings may also be rooted in spring. For this purpose a few old plants should be placed in heat, and the shoots taken off as soon as long enough for cuttings.

Coleuses may be grown from cuttings taken in January. When rooted place in 3-inch pots, take out the points to insure a number of breaks, and grow in a steady heat. As soon as they are sufficiently rooted transfer to 7-inch pots, using a good compost, and stand in a warm frame. With judicious treatment they will make bushy plants by the beginning or middle of June, when they may be removed to a sunny position in the plant house, supporting them with weak liquid manure. By the middle of July they will be fine sturdy well-coloured plants. A number of standard Coleus may also be grown, by allowing the main stem to grow and taking out side growths until they reach a sufficient height, when the lateral shoots may be allowed to grow. These plants should be grown in 9-inch pots, using a rich compost.

Tuberous-rooted Begonias will enrich the conservatory during this season. *Kalosanthes coccinea* and *Uriah Pike* Carnation will also form an additional attraction. A supply of annuals, including such as *Petunias*, *Balsams*, *Celosias*, *Nicotiana affinis*, *Salpiglossis*, *Schizanthus pinnatus*, and others, will help to keep the house gay for some time. For edging purposes *Isolepis gracilis* and *Mimulus* are serviceable. Abundance of air should now be admitted night and day. The collection just named will continue during the succeeding two months. In September the shading may be taken down. Towards the end of this month a little heat should be kept in the pipes and the ventilators closed at night. This will benefit the Fuchsias, and also prevent the Coleus dropping their leaves.

A few Bouvardias grown after the manner described by "Dunelm,"

page 547 (last vol.), also Lantanas grown under much the same treatment, also a few pots of *Lilium lancifolium*, will add very much to the beauty of the house, succeeding the Begonias or any of the annuals which have become unsightly. A few early flowering Chrysanthemums will also be very good additions. Not much more can be done until the general collection of Chrysanthemums is introduced. This will be about the middle of October. The Fuchsias may then be put under a stage to root. Do not allow them to get too dry, but water them occasionally during the winter. In spring they may be pruned and started as previously stated. The Coleus, from which cuttings should have been taken early in September, may now be thrown to the rubbish heap. The cuttings having been rooted in a warm frame in 4-inch pots may be placed on a shelf in the stove. Take out the points, and they will then make good plants from which to raise the stock for the succeeding year's work. All plants should be cleared out of the conservatory in October. The climbers will then have finished flowering, and should be pruned. Take out all superabundant growth, retaining sufficient to furnish the girders with green foliage. Destroy any insect life which may appear, and clean the house thoroughly.—P. W.

(To be continued.)

BEGONIA GLOIRE DE SCEAUX.

FEW plants give better results for good culture than winter flowering Begonias. Take, for instance, Gloire de Sceaux; if the plants are cut down in April, and given little or no water for three weeks or a month, then placed in a house with a little bottom heat, they will soon produce growths from the bottom. In taking cuttings select the stronger growths and insert them singly in thumb pots in a light compost of loam and peat, or leaf soil, with a good dash of sand. Place them in the propagating pit under bell-glasses, and as soon as they are rooted pot in large 60's, and grow the plants in a temperature of 60° to 65°. Great care must be taken not to let them get dry at any time, but avoid overwatering.

Before the plants are root-bound shift them into 32's, in a compost of two parts fibrous loam, one part rough peat, and one part leaf soil, with a little dried cow manure and coarse sand. Pot lightly, and keep them in moist temperature of about 65°. When the plants are about 1 foot in height pinch out the points, which will induce a bushy habit. Keep the stages and floors of the house damp, and syringe lightly in hot weather.

Lightly fumigate the house about every three weeks, as they are very subject to small white thrips invisible to the naked eye, which, if not checked, play sad havoc with the young foliage, and prevention is better than cure; when flowering commences (which will be in November or December) keep the plants in a temperature of 50° by night and 55° by day, and they will afford a display of bloom equalled by very few plants, and lasting four months.—F. T. W.

CROTON CULTURE.

THESE beautiful foliage plants rank among the best for decorative purposes. Plants now in 5 and 6-inch pots may be shifted into others two sizes larger, using a compost of two parts fibry loam, one of rough peat, and half a part of coarse silver sand. Do not reduce the balls too much at this season, the removal of the old crocks and the surface soil being quite sufficient. Withhold water until the roots begin to move, but use the syringe freely. Any plants which have become tall but have good tops may have these rooted by cutting a notch or two in the stem close to the foliage, and binding round into a ball with sphagnum moss, placing a little sand in it to come in contact with the notch, and keeping moist. This helps the rooting process.

When roots are emitted the stem may be cut through close to the moss. Without disturbing the roots place in pots suitable to the size of the ball, and plunge in bottom heat for about three weeks. The roots will soon enter the fresh soil, when the plants may be taken back to the stove. Cuttings may also be inserted in thumb pots in February or March, choosing clean, healthy, well-coloured shoots. A propagating case where a bottom heat of 70° is maintained is suitable for rooting them. When well rooted they may be removed to a shelf near the glass. In a short time the plants will be ready for a shift into 3-inch pots, using a compost of fibry loam, peat, and sand, without the addition of leaf mould. Stand the pots on shelves near the glass in a low house, and shade for a week or more from bright sunshine. If the soil is in good condition no water will be required for some time, but the syringe must be used twice or thrice daily in bright weather, also the floors and staging should be kept damp. A temperature of from 75° to 80° by day with a rise of 10° from sun heat, and a night temperature of from 65° to 70°, will be suitable. About the middle of May the plants will be ready for 5-inch pots, and may be grown in the same house till September, and then taken to the stove for winter embellishment.

Later in the season a few of the small-leaved varieties may be propagated and brought on in 3-inch pots, these being useful for intermingling with the larger ones in various forms of decoration. Another batch should be propagated in August and placed in 3-inch pots about the middle of September; they will get well established before the dull weather sets in, and make useful plants by the following autumn. However, a few may be kept in thumb pots through the winter, as these have a very pleasing appearance in the rockwork of a large table centre. Large plants, if desired, may be cut back fairly hard and allowed to break, when they should have the soil reduced, and placed in fresh in the same sized pots. The second year a top-dressing would be ample.

Crotons revel in abundance of heat and moisture throughout the growing season, and shading is necessary in very hot weather. Air should be admitted freely from the beginning of August to the middle of September to allow of the plants becoming to some extent hardened and highly coloured. All shading must be removed by the 1st of September. Crotons are subject to the attack of thrips, red spider, and mealy bug. Against the former fumigating with tobacco paper is an effective remedy; the latter succumbs to a solution of soft soap and petroleum, 4 ozs. of the soap to wineglassful of petroleum to 1 gallon of water. The smaller plants may be immersed in a tub of the solution at a temperature of 110°; the larger plants should be laid on their sides, and the insecticide directed into their points by means of a syringe or pump. A few good varieties for all-round purposes are Prince of Wales, angustifolius, interruptus aurea, Warreni, Chelsoni, nobilis, Langi, majesticus, Princess of Wales, Sunset, Clarki, and Victoria. These, among many others, are invaluable through the winter, when flowering plants are scarce.—LEARNER.

GLOXINIAS.

WHILST reading "Youngster's" article (page 144) on the above subject I was surprised at the method of culture recommended by him. In the first instance he seems inclined to deplore the fact that Gloxinias are not largely grown. I can assure him that they are grown in quantity in many establishments. In the gardens where I have been employed, and in various others that I have at times visited, I have invariably found a goodly number of Gloxinias. I have occasionally seen houses devoted solely to them. Farther on "Youngster" says, "As soon as the tiny seedlings can be fairly seen prick them off." I think it more advisable to leave them in the seed pans till one or two rough leaves are formed; they can then be easily handled by a careful man.

Then, again, a cool greenhouse would not be a suitable place for storing the corms throughout the resting period. The temperature of that structure would fall much too low to keep them sound and healthy. A stove or intermediate house would be the best situation for them. For starting the corms into growth at any season a temperature of 50° would not be sufficient; 60° to 65° I find suitable to start them in, certainly not more than 5° lower. Gloxinias are very partial to genial moist heat, therefore I consider they ought not at any time be subjected to a temperature less than 55°.

For potting compost "nothing suits them better than a mixture of three parts leaf soil, one each of loam and sand, with a sprinkling of soot added," says "Youngster." I venture to state the following mixture will be found more adapted to meet the requirements of Gloxinias:—Good fibry loam and peat two parts each, well-decayed cow manure, leaf soil, and sand one part each. Soot is best applied in liquid form. Weak doses given twice a week, commencing when the pots are filled with roots, prove an excellent stimulant. We grow Gloxinias by the hundred, as they are much in demand both in a cut state and as pot plants. By starting them in successional batches we have abundance of bloom for over six months. One and two-year-old corms are used for early and midseason supplies, these being followed by young plants raised from seed sown in the previous February.—W. P.

SNOWDROPS.

SNOWDROPS are well known, and who does not love them? They are the acknowledged chief heralds of spring, producing their light green leaves and white bell-shaped flowers while dreary winter has scarcely left us, and while there are but few flowers out of doors for companionship. In the language of flowers the Snowdrop is the emblem of hope.

There is an old world legend which tells us how Hope chose the Snowdrop for her emblem; that Hope, with her long, golden hair dishevelled, stood one day leaning upon her anchor, watching the snowflakes fall down upon the earth; that Spring stood beside her, and Hope said the earth would look much more cheerful if instead of snow which melted and left the woods and fields dark and damp, the snowflakes were changed to white flowers as soon as they reached the earth; that Spring smiled as she listened to Hope, and sending her sweet warm breath amongst the falling snow it fell in the form of flowers, and so the Snowdrop was first made, that Hope caught the first flower as it fell, and said it would be her emblem throughout all time.

Galanthus, the botanical name of the Snowdrop, is derived from *gala*, milk, and *anthos*, a flower, in reference to the milk-white flowers. It belongs to the natural order Amaryllidaceæ, other members of this order being *Leucoium*, *Narcissus*, &c. Of the species and varieties in cultivation perhaps *G. nivalis* and *G. Elwesii* are the best known. Snowdrops are of easy cultivation, and will thrive in almost any soil or situation. For naturalising in grass, by woodland walks, and under deciduous trees they are very suitable, and they are both cheap and attractive. If planted in the autumn they will make a good show the next February. When once planted they should not be disturbed. They will soon establish themselves, and will come more plentiful every year.

I often wonder why Snowdrops are not more used for naturalisation in public gardens and the gardens in the squares of our large towns, where at the present time they are devoid of flowers from November till May. Nothing could be more attractive at the present time than in the midst of the grim and black appearance of these gardens to see patches of Snowdrops here and there, reviving the spirits and giving fresh hope to those who look upon them.—CAMEO.



FRUIT FORCING.

Cherry Houses.—Ventilation is the main art in forcing Cherries, and requires unremitting attention. A free circulation of air should pass through the house whenever the temperature exceeds 50°, regulating the amount by the conditions of the external atmosphere. Employ fire heat only to maintain 50° through the day, relying on sun heat for advancement, and maintain a night temperature of 40° to 45°. The blossoming over and the fruit swelling, recourse may again be had to syringing; but avoid keeping the trees dripping with water, always allowing the foliage to become fairly dry before night. Keep a keen eye on aphides, and promptly fumigate or syringe the trees with quassia water. This may be made by steeping 4 ozs. of chips overnight in a gallon of soft water, boiling fifteen minutes, and dissolving in it as it cools 2 ozs. of softsoap, straining, and adding boiling water to make 1 gallon, as some liquid is lost in boiling. Affected shoots should be gently rubbed between the fingers, well moistened with the preparation, so as to dislodge the pests on the under side of the leaves, then apply the liquid at a temperature of about 100° by means of a spraying apparatus, which insures better distribution, and 1 gallon will go as far as 6 gallons by ordinary syringing. Look carefully over the trees for grubs. One kind, a species of Tortrix, rolls itself up in the leaves, and can be eradicated by squeezing between the thumb and finger; but the other becomes encased on the under side of the leaves, giving the appearance of being scalded, and from the leaves it passes to the Cherries, eating and spoiling them. The only remedy is to search for and destroy the grubs. Supply water or liquid manure to the border as required, keeping trees in pots well supplied, and afford top-dressings of rich material. Pinch side growths at the fourth or fifth leaf, heeling-in extension or side growths required to cover vacant space.

Cucumbers.—Light and sun heat increase the evaporation, necessitating a greater supply of atmospheric moisture, therefore damp the house twice a day and syringe the plants lightly early on bright afternoons. On cold nights 65° is ample, but on mild nights allow 5° more, maintaining 70° to 75° by day and 80° to 85° or 90° from sun heat, closing early so as to increase the heat to 90° or even 100°. Afford liquid manure once or twice a week, with an occasional application of nitrate of soda, $\frac{1}{2}$ oz. to a gallon of water. This puts vigour into the plants and both size and colour into the fruit. Stop the shoots one joint beyond the show for fruit. Thin the Cucumbers well to secure fine specimens, removing superfluous growth, tendrils, bad leaves, and male blossoms. Ventilate early and carefully, avoiding draughts and depressions of temperature.

Plants in Pits and Frames.—These have had a fairly good time, the temperature being kept up without difficulty. Cover the lights at night and prepare material for fresh beds and for linings, sowing seeds as occasional plants are required. (See Melons.)

Figs.—*Earliest Forced Trees in Pots.*—The first swelling of the fruits on trees started in November will soon be completed. They remain stationary for some time in the process of flowering, and as this is the most critical time in their culture every care must be taken to avoid a check. Insufficient moisture or excessive fire heat will cause the fruits to drop when they should be commencing their last swelling, therefore keep the temperature steady. If mild it may be kept at 60° to 65° at night, but if the weather is cold 5° less is safer, and what is lost at night may be gained in the daytime by closing with plenty of heat and moisture (but not with the latter hanging on the fruit), when a rise of 10° to 15° may be indulged in without producing a weak or elongated growth, keeping the temperature through the day with gleams of sun at 70° to 75°, otherwise 65° artificially. Afford copious syringings on all favourable occasions as a means of keeping down red spider. It is prone to attack foliage most in close proximity to hot-water pipes, and should be prevented spreading by sponging the leaves carefully with a soapy solution, 2 ozs. of softsoap to a gallon of water. To encourage the swelling of the fruit top-dressings of rich materials should be applied to the surface of the pots. Supply tepid liquid manure steadily to the roots, giving it in sufficient quantity to pass through the pots. Avoid crowding the growths, stopping at about the fifth leaf, tying out the shoots as the growth advances, and cutting out superfluous shoots. These, however, are best prevented by rubbing them off early, so as to give those left all the light possible. The fruit, to have colour and high flavour, must have full exposure to light and a circulation of warm rather dry air.

Planted-out Fig Trees.—Those started early in the year will require disbudding, removing all the overcrowded shoots, and where there is not room for laying in a long shoot, yet space for some growth, the shoots may be pinched at the fifth or sixth leaf to form well developed so-called spurs for the second crop, the leading and successional shoots, where there is space, being allowed to extend, as these invariably afford the finest fruits and longest succession. Water the border as required with liquid manure, taking care not to apply it too strong, and mulch with an inch of rather rich compost, which attracts the roots to the

surface. Trees in restricted borders, and needing more support, may have roots encouraged from the collar by placing turves interspersed with lime rubbish and manure in contact with it, and by extending the material outwards a quantity of feeders will be secured, which, if duly supplied with liquid manure, will greatly assist the fruit in swelling. Syringe the trees twice a day in favourable weather, damping only on dull days, and keep the mulching moistened as it becomes dry.

Young Trees in Pots.—Shift those intended for next year's forcing, potting firmly, and afford gentle bottom heat. Shade slightly from bright sunshine for a few days until they show signs of having taken to the new soil, when they should be fully exposed to light. Pinch the growths so as to insure a sturdy well-furnished head, training with a single stem of 8 to 12 inches.

Melons.—A ridge about 2 feet wide at the base with the top flattened, so as to give a depth of 10 or 12 inches, is preferable to hillocks, though these may be made about the same in diameter as the width of the ridge, and its depth at the places where the plants are to be put out $2\frac{1}{2}$ to 3 feet apart. The soil should be firm, and when warmed through planting may be done, keeping the seed leaves clear of the soil. The leading shoots should be taken up without stopping until two-thirds the distance is reached they are intended to travel, then pinch out the point of each, and rub off the laterals to the height of the trellis. Some varieties show fruit on the first laterals, and as early fruit is a main feature with the plants allow them to remain, taking out the point at the joint above the fruit at the time of fertilising the blossom. To allow all the laterals to remain would very much overcrowd the foliage, therefore rub off while quite young every alternate one. If the laterals do not show fruit at the second or third joint pinch them at those points, and the succeeding growths will show fruit. Train the growths thinly and regularly, so that every part is equally furnished with foliage, all having due exposure to light.

Melons in Pits and Frames.—Stop the plants at the second leaf before or after planting out. This causes two shoots to push, and these in turn being pinched similarly will give four shoots, two to be taken to the front and two to the back of the frame. Other growths that appear near the collar of the plants should be rubbed off while quite young, not encouraging any laterals nearer the stem than 6 inches, as it is necessary to keep the collar clear. Stop the principal shoots when within 1 foot of the sides of the pit or frame, thus throwing vigour into the laterals, and the growths must not be crowded. The laterals will show fruit at the second or third joint, and they should be pinched one joint beyond the fruit, but not until the blossom is fertilised. Little water will be required, nevertheless maintain the soil in a moist state, but avoid a saturated condition. Cover the lights with double mats at night, and see that the linings are regularly attended to, renewing as required. Prepare material for fresh beds and linings. Three parts Oak, Spanish Chestnut, or Beech leaves, and one part stable litter make the best beds, mixing the materials about a fortnight before it is desired to make the beds. In a few days it will be seen whether there is enough moisture to insure fermentation—if not turn the whole, and sprinkle with water or liquid manure so as to moisten the mass, and when in good heat turn the heap outside to inside, two or three turnings being required at intervals of about four days. Maintain the bottom heat at 85° to 90°, taking care, however, to prevent overheating.

Melon Houses.—In these more moisture is necessary, therefore sprinkle the paths and walls in the morning and early in the afternoon. Ventilate carefully, avoiding cold currents of air, placing some hexagon netting or coarse scrim canvas over the ventilators when the outside air is sharp. Maintain a night temperature of 65°, and the day heat at 70° to 75°, rising to 80°, 85°, or 90° from sun heat, and closing early, so as to raise to 90° or more, keeping the bottom heat steady at 80°. Sow seed for raising young plants to sustain the succession, and shift seedlings into large pots, or add soil as the plants advance. Stop those at the second leaf for frames, but not for trellises.

THE KITCHEN GARDEN.

Globe Artichokes.—The mildness of the weather has started these into active growth somewhat earlier than usual, and there ought to be no delay in removing protective material from the crowns. Where young growths are numerous, these should be freely thinned, three or four strong flowering stems giving better results than a greater number of weakly ones. After the thinning is done give the plants a heavy dressing of half-decayed manure. A soaking of moderately strong liquid manure would not be wasted on the older clumps. It is large succulent flower heads that are required, and these starvelings never produce. A row or rows of the oldest or nearly worn-out plants ought to be destroyed, and a corresponding number of young ones be planted annually. April is a good time to do this, and the requisite number of sucker growths should be saved on the clumps when the thinning out is done.

Jerusalem Artichokes.—It is a mistake to leave these to grow of their own accord on the same plot of ground year after year. Much better results attend the practice of changing the sites, and planting every season. Prepare the ground as for Potatoes, manuring moderately and cultivating deeply. Select medium-sized tubers, planting these whole and before they have lost their first strong sprout. Open drills 5 inches deep and 3 feet apart, disposing the sets 1 foot apart in these. Level the soil, keep the ground free of weeds, and mould up the stems. The white-skinned variety is the best in every way. Dig over the old quarters for all the tubers left in them, rub off the shoots, and store in a heap, soiling over for present use.

Brussels Sprouts.—Since the introduction of more reliable varieties, there has been less need to sow the seed and plant so early as of old, but the heaviest and best crops are usually produced by plants raised and put out comparatively early. Sow seed now thinly in boxes, placing it in gentle heat to germinate, or the requisite number of plants may be raised on a shallow hothed with or without a covering of glass. Market growers sow their seed quite in the open, roughly protecting with straw, and those private gardeners who have little frame or house room to spare should adopt the same practice.

Broccoli.—Early autumn varieties, notably Veitch's Autumn Protecting, can be had in close succession to Autumn Giant Cauliflowers, and the crop may be considered an important one. Seed should be sown now, much as advised in the case of Brussels Sprouts. None of the winter Broccoli should be sown yet. April and May is quite soon enough to sow these.

Leeks.—For the main crop sow seed of Ayton Castle, Musselburgh, or other approved variety on free working soil in the open. Seeing that the plants will most probably be moved direct to where they are to grow to their full size, the seed should be sown thinly, and either broadcast or in shallow drills 6 inches apart. If the ground now occupied by Leeks is wanted for other crops, they may be lifted and laid in closely on a cool border, taking care to well cover the blanched portion of stems with soil. This will also retard bolting or running to seed.

Onions.—Early sowing is desirable, but should not be attempted till the ground is sufficiently dry to admit of its being trampled heavily without binding badly. This important crop ought to have a well-prepared site, the ground if at all clayey requiring to be heavily manured, and deeply dug early enough for the frosts to assist in fining it down thoroughly. Some few naturally free-working soils may be dug, and the seeds sown at once in preference to leaving them long enough to become hard and difficult to fine down. In any case level the surface, making it as fine as possible, also stirring in soot at the rate of 1 peck to the square rod, following with a heavy trampling and a good raking. Shallow but not very narrow drills may be drawn at 10 inches to 12 inches apart, and the seed sown thinly in these. Fix the seed in the drills with the foot, and then give a final raking, leaving all level and smooth.

Autumn-sown Onions.—These can be transplanted now. They ought to have well-prepared ground, but should not share the same site as the more valuable spring-sown crops owing to the liability of the Tripoli section in particular to become mildewed, the wind spreading the disease to other Onions near. Arrange them 6 inches apart in rows not less than 12 inches asunder. Plant at the same depth as they were in the seed bed, and spread out the roots, covering firmly with good fine soil.

Scallions.—Thanks to the roots being so thoroughly harvested last season they are keeping sound, better than is often the case in mild winters. Where, however, they were stored in warm darkened sheds they are softening and forming top growth, and unless attended to will soon be worthless. Plant the greater portion of them in the open ground, about 5 inches asunder in rows 8 inches apart. When strong top growth has been formed draw the Onions as required for use, pulling them to pieces and clearing of old skins. They will be scarcely distinguishable from Tripoli Onions, and will be found of good service at a time when home-grown Onions are scarce.

Rhubarb.—Growth has commenced early on the roots not covered in any way, and there ought to be no further delay in forming fresh plantations. Large, spreading, old clumps are the best to divide, each portion having one or more crowns and a few roots attached. Replant in heavily manured, deeply dug ground 2 feet apart each way if they are to be prepared for lifting and forcing, and 3 feet apart if large strong clumps are to form. Only just the crown should show above the soil, and the soil ought to be made firm about the roots. Mulch with strawy manure, and on no account pull any of the leaves during the first season.

PLANT HOUSES.

Fittonias.—In 2-inch pots these are useful little plants for various forms of decoration. They root readily at almost any season of the year, and may be inserted in the pots in which they are to be grown, and few dwarf plants are more effective when associated with small Ferns or Selaginellas. The two varieties, arranged together as a front margin to the stove or Orchid house, are very pleasing, and the close moist atmosphere of the latter suits them admirably. They are more beautiful when grown in low Orchid pans 4 inches across than when employed in ordinary pots. When arranged at the front of a group of plants these low pans can be tilted so that the plants with their finely marked leaves reach to the base.

Sonerilas.—These are not so useful on the whole as Fittonias, nevertheless where choice plants are grown and appreciated for their chaste beauty a few of these should be included. A few pans in the stove or in the Orchid house are certainly an attraction. These plants grow very well in small baskets in close moist shaded houses. For this purpose the cuttings should be inserted in pans and the plants subsequently dibbled in the baskets, using as a compost rough peat moss and sand. If dewed over twice daily after they are rooted and placed in the baskets they soon cover the material in which they are grown.

Bertolonias.—A stove scarcely seems furnished without a few of these foliage plants. Young plants that have passed the winter well in small pots may be placed into 4-inch, which are large enough for them to develop beautiful leaves. Side shoots on larger plants that were retained, if inserted in small pots in moss and sand, will root quickly in the propagating frame. The atmosphere of the stove is too airy and

dry as a rule for these plants, and until they are developed we grow them in hand-lights in the house.

Panicum variegatum.—For many forms of decoration the old Panicum is invaluable. Associated with Selaginella cæsia, it is unquestionably the best edging to the stove, or any warm house, that can be employed. Those rooted in autumn, and now in 60's, may be placed in 5-inch pots, and before the end of the season the growths will hang from the stage to the ground. Cuttings may be also inserted in 5-inch pots. This plant is suitable for baskets, and in a few months these have a very attractive appearance.

Nepenthes.—Plants that have grown tall should be cut down to within 6 inches of the base. The stem may be cut into lengths of two leaves to each; these if inserted in sphagnum moss and sand, and plunged in brisk heat in the propagating frame, will soon root. Plants which have made four or five leaves, and are not required for stock, may be pinched; this insures their breaking and pitching freely. If they are allowed to "run away" they soon cease to produce pitchers. When the plants are grown in baskets and need larger ones it is the best plan to place the old baskets inside the new, and then fill in with rough peat, lumps of charcoal, and sphagnum moss. These plants are subject to thrips, and the best method of eradicating them is to tie the basket in a piece of close tiffany, and then syringe thoroughly over a tank containing a solution of tobacco water. If the basket is not covered the thrips drop into the moss, and are not long before they establish themselves on the plants again.

THE BEE-KEEPER.

QUESTIONS ON BEE-KEEPING.

ON June 8th, 1895, a stray swarm of bees came and settled on a tree near my cottage, which I hived in a box. Having obtained a bar-frame hive, containing twelve frames, from a neighbour, the bees were placed in it the same night. In the autumn I removed two frames, and left the remaining ten for the winter (No. 1).

On the 13th May, 1896, a strong swarm came off, weighing 6 lbs. This was hived in a straw skep, and in the evening transferred to a double twelve-frame hive (No. 2).

On the 25th May No. 1 swarmed again, the weight of bees being much less than the former, only weighing 2½ lbs. The bees were placed in a small hive (No. 3). In the autumn eight frames containing brood and honey were left in each hive.

On examining them to-day (February 18th) I found them all in good condition; plenty of bees and ample stores. This season I am anxious to obtain one swarm and no more.

Which of the above stocks would be best for me to obtain a swarm from? How am I to prevent the others swarming? When is the proper time to give more empty frames so as to obtain a good surplus of honey?

I shall be grateful for any information "An English Bee-keeper" can give me on the subject, as I know nothing about queen cells and rearing young queens.

During the past season I obtained about 40 lbs. of honey, and was awarded second prize at our local show for a frame of comb honey weighing 5 lbs.—D. H. B.

BEE SWARMING.

As the queen in No. 2 hive will now be three years old, the colony must be requeened at the earliest possible date. This, however, should not be attempted until there are numerous drones on the wing, or it will end in failure. Allow this stock to swarm, the old queen will accompany the swarm, place them in a frame hive on not more than eight frames. The queen being old her laying powers will be on the wane, and probably not a third of the number of eggs will be laid as a young fertile queen would have done. If honey is coming in freely place a crate of sections on the top of the frames, and the bees will at once store a surplus.

Six days afterwards carefully examine the interior of No. 2 hive. Lift each frame out of the hive, and remove with the point of a knife all the queen cells but two. These should be left on separate frames, and are easily distinguished, as they are similar in size and shape to an acorn, point downwards. This being a double hive, place half the frames, brood, and bees on each side of the division board with a frame containing a queen cell in the middle of each. This operation may be carried out with separate hives, care being taken that sufficient bees are placed in each to cover the brood.

In about ten days from the time the stock swarmed the young queens will have hatched out, and if the weather is bright will become fertilised and laying within a fortnight. When this has taken place go to the hive containing the swarm and lift the frames out until the queen is found, which is easily done at that season if the middle of a fine day is chosen for the operation, as the majority of adult bees will be on the wing. Destroy the queen when found, cover the frames temporarily, and return to No. 2

hive. Remove the quilt from one of the divisions, lift the frames out one by one until the queen is found, then take the frame with the young queen and adhering bees and place them in the centre of the brood nest of the hive from which the aged queen had previously been removed.

Place the frames in their original position, and cover up as before. Do not disturb them for a few days and all will be well, no fighting will take place, and the colony will be headed by a young fertile queen. The remaining frames of brood and bees must now be transferred to the other side of the division board in No. 2 hive. These should be placed alternately with the others containing the young queen; they will then settle down as one happy family, and will be of sufficient strength to store a surplus in either shallow frames or sections.

HOW TO PREVENT SWARMING.

Once I found this a very difficult matter, and I know of nothing more annoying to a bee-keeper than just when his bees ought to be settling down to their work to have the swarming mania instead; but by studying their ways and requirements I have proved without doubt that it may be prevented. The chief thing to bear in mind is to rely on young queens as far as it is possible, and to provide the necessary room in the brood nests as well as in supers at the right time.

It is useless giving the bees extra space several days after they have made preparations for swarming. Many people imagine that it is a sudden impulse on the part of the queen when swarming takes place, whereas preparations have been made in the hive for a week or ten days previously, queen cells having been formed, which is a sure sign that the bees will swarm in a few days provided the weather is suitable.

To prevent this give extra frames once or twice a week as fast as the bees can cover them, and when the brood nest is showing signs of being crowded place a super on the top, either sections, shallow frames, or full-sized frames, as advised in previous notes.

GIVING EMPTY FRAMES TO OBTAIN A SURPLUS.

This will depend on the time of the honey flow. If from the fruit tree blossoms special precautions will be necessary by restricting the size of the brood nest so as to encourage the bees to store a surplus in supers; afterwards, if "D. H. B." is situated in a good White Clover district, extra frames may be provided for the queen. It is only in exceptional instances that it is necessary to reduce the brood nest early in the season, as it has a tendency to cause swarming.

If the advice is carried out as given above, all that will be necessary afterwards will be to place more empty frames or sections under those partially filled, and to remove those that are quite full when ready.

If "D. H. B." would like any further information he must write again. Had he left an extra space between the frames when working for extracted honey, the cells would have been deeper, and the frame of well-sealed honey (standard size) would have weighed about 8 lbs.

FEEDING STOCKS WITH CANDIED HONEY.

"I HAVE a quantity of candied honey. Can I feed my stocks with it? If so, will you kindly inform me how I ought to proceed? My hives are bar-frame, and extra straw skeps with flat tops.—J. G.

Candied honey may be made liquid by placing the vessel containing it in hot-water. Unless the bees are short of stores it is not advisable to feed them with liquid food so early in the season; a bottle feeder should be used, there will then be no escape of heat from the brood nest. The honey should be given to them warm in the evening, and well covered up. An ordinary broad-necked honey jar covered with a piece of tiffany or muslin will make an excellent feeder, and if some perforated zinc is placed on the top of the frames the bees will not be disturbed during the refilling of the feeder. This is all that is necessary on the top of straw skeps; a flower pot slightly larger than the feeder, and placed over it, will prevent it being damaged.

The entrances of all hives that are being fed with honey must be reduced, or robbers will gain an entrance and play havoc with the stores.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

J. Carter & Co., 237, High Holborn.—*Lawn Grass Seeds, Farm Seeds.*
T. R. Dobbs & Co., Queen's Square, Wolverhampton.—*Seeds.*
J. Green, Dereham.—*Dahlias.*
Letellier et Fils, Caen, France.—*Strawberries.*
Little & Ballantyne, Carlisle.—*Farm Seeds.*
A. Perry, Winchmore Hill.—*Hardy Perennials.*
Ant Roozen & Son, Overveen, Haarlem.—*Bulbs and Seeds.*
J. Sharpe, Bardney, Lincs.—*Farm Annual.*



* * All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Victoria Regia (E. T. H.).—We do not remember a small inexpensive book which gives a description of this remarkable plant, which has been illustrated in the *Journal of Horticulture*. Possibly some of our readers may be able to supply the information you require.

Definition of "Cottager" as an Exhibitor of Garden Produce (G. Hambow).—A rigid definition applicable to all districts and shows is a practical impossibility. We have consulted a very experienced horticulturist on this subject—we think he has been a cottager, we know he has been a gardener and judge, and he now comes within the category of amateur. He has given much thought to the matter, and expresses his views as follows:—"A 'cottager' may be defined as a person occupying a house at a rental of not exceeding £10 in the country or £20 in or near towns. He may have a garden or an allotment, or both, and must do all the labour in connection with the production of plants, flowers, fruits, and vegetables with his own hands, in addition to the work by which he obtains a livelihood, as a person working for wages day by day, week by week, and year by year. Thus the term 'cottager' includes every class of workman, classed as labourer or artisan, and restricts it absolutely to a person working for an employer during ten hours (or about) of each working day in a year, and who does not employ (illness excepted) any person to do any part of the work in his garden or on his allotment, except his wife and members of his own family not exceeding fourteen years of age. This is very simple, and excludes master tradesmen, pensioners, policemen, and others who can give attention personally to greenhouse plants, gardens, or allotments for several hours in the daytime. Thus the line is drawn hard and sharp between a 'cottager,' who does a day's work for a master and has no time to devote to the cultivation of plants, flowers, fruits, or vegetables, except between 6 P.M. and 6 A.M., and an 'amateur,' who, though not occupying a higher rented house or a large area of land, does the main of the cultural operations in connection therewith in the daytime, and in that respect has a manifest advantage over a person working for wages and doing all such operations in his leisure hours, whether growing in that time for his own use solely or for disposing of surplus produce. Under those conditions a 'cottager' may grow as many window plants as he has accommodation for, and supplement them to whatever extent his pocket allows by means of a greenhouse. Likewise as regards flowers, fruits, and vegetables, no limit need be placed on the extent of garden or allotment, for one person will manage twice as much as another, as a great deal depends upon 'brains,' industrial energy, and perseverance, the chief object being to encourage the 'cottager'—a person working for wages—to employ his leisure hours to the best advantage to himself, his family, and country. That is a broad view of the case, and secures the 'cottager' justice at exhibitions. But there are generally particular objects in view by different horticultural societies in offering prizes, hence certain restrictions are imposed in both rural and urban districts. In the country a 'cottager' is usually confined, as regards 'glass,' to window plants; and in respect of garden or allotment, to the extent apportioned generally to each individual in the locality and within the district embraced by the society. In urban districts similar remarks apply, no 'cottager' being allowed to exhibit plants grown in a greenhouse except in a class for such plants, for if a person so growing them exhibit in a window plant class the whole thing is a delusion, and an injustice to a *bonâ fide* exhibitor of window-grown plants in strict accordance with the schedule. In the narrow sense, therefore, the definition of a 'cottager' is a matter for the committee of each district society to determine, and the decision should be clearly stated in the schedule, also strictly enforced by the officials of the society, not by the judges." The above observations cover the ground of your questions. As a matter of practice, we know that in some schedules classes are provided for such persons as policemen and postmen, who, though living in cottages, have many hours in the daytime for working in their gardens, which ordinary day labourers and other workmen have not, and these only are regarded as genuine cottagers.

Fish Offal (Inquirer).—The best practice is to dry and grind it, forming "fish meal"—a fine powder in excellent condition for use. With an equal amount by weight of kainit added to it, it forms an effective manure, especially for light soils, and one of the best for garden crops generally. As you may not be able to dry and grind the fish offal it may be formed into a compost, preferably by adding as much dry wood ashes to it as its bulk, and covering with gypsum in an outhouse, leaving until decomposed, dry, and crumbling, then mix all together, and use at the rate of about 8 ozs. per square yard: If you cannot procure the wood ashes mix with two parts soil, as much kainit as weight of fish offal, and form into a heap, with an addition of half as much gypsum as fish refuse placed outside, or cover with soil. When decayed it forms an excellent manure, using about 1½ lb. per square yard. If there be any smell sprinkle powdered sulphate of iron over the heap, not using more than 1 lb. to each 100 lbs. of fish offal. It is better, however, to mix it with the compost, then cover with earth or gypsum.

Narcissi After Forcing (M.).—The several varieties of Narcissus incomparabilis, also double and single Daffodils, are of further use after they have been forced, provided the leaves are grown and ripened under favourable conditions, and thus store matter in the bulbs. This may be effected by keeping the plants in a cool house, or even pits or frames, with protection in severe weather, so as to inure them to a lower temperature and enable them to bear the external air; then they may be planted outdoors, or kept in the pots or boxes until died down, not allowing them to suffer by lack of water, nor overdoing it. In July the bulbs should be lifted or shaken out of the pots or boxes, and planted in beds of well-prepared loamy soil, preferably rather strong, planting in rows 6 inches apart, and the bulbs 2 inches asunder in the rows, and that depth. With a mulch of any rich material in autumn keeping clear of weeds, and giving a liquid application of manure about the usual time of flowering in spring the plants will come round in two or three years, usually two, and then may be forced again. They are lifted in July, the strong bulbs kept for forcing, and the smaller planted to maintain a supply for the same purpose.

Magnolia Leaves Brownd (A. L. M.).—We cannot detect any fungoid or other organism likely to cause the discolouration in the leaves. It has been caused by a sudden check, such as the arresting of evaporation from the leaves by a thick covering of hay or similar material, the respiration being practically prevented, and the moisture in consequence remaining in the tissues, thus "sweating" and the parts dying. We find that similar cases have occurred in young trees imported from the Continent, through their having been thickly wrapped in hay and matted to safeguard them against injury in transit. The young wood of Fig trees also suffers in a similar manner when very heavily covered with hay or short straw, evaporation being prevented and the moisture kept constantly on the tender young wood surface, hence the destruction of the epidermal cells, as evidenced by the browning. The leaves, as shown by the green parts, were quite healthy before being deprived of evaporative power by the covering, and the parts remaining green are so because either more developed towards maturation in tissue or from the covering fitting less tightly over the parts. If the wood be browned as well as the leaves it may be advisable to remove the tree and replace it by a healthy one, or the present tree might push good growth if cut back to firm wood. There is no need to cover this very desirable wall tree very thickly to insure its safety from frost, a little loose material placed amongst the growths and a covering of mats to keep it in place being ample. Then the tree will receive plenty of air and even some light, retaining the foliage in a green healthy state.

Names of Fruits.—*Notice.*—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. They should be sent on the first indication of change towards ripening. Dessert Pears cannot be named in a hard green state. (A. H.).—Court of Wick. (J. S. U.).—The Pear resembles Figue de Naples. The Apple is not recognisable, but it is not Cox's Orange Pippin.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (H. Stapley).—1, *Acacia longifolia*; 2, *Oxalis*, flowers closed and withered, perhaps *O. Bowei*; 3, *Leschenaultia biloba*; 4, *Pimelea spectabilis*; 5, *Fuchsia procumbens*. (Young Hand).—*Cornus mas*.

COVENT GARDEN MARKET.—MARCH 3RD.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples, $\frac{1}{2}$ sieve	1	3	to	2	6	Lemons, case	11	0	to 14	0
Filberts and Cobs, per 100lb.	0	0	0	0	Plums, $\frac{1}{2}$ sieve	0	0	0	0	
Grapes, per lb.	2	0	3	0	St. Michael Pines, each ..	3	0	8	0	

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.	
Asparagus, per 100	0	0	to	0	0	Mustard and Oress, punnet	0	2	to 0	4
Beans, $\frac{1}{2}$ sieve	0	0		0	0	Onions, bushel	3	6		4
Beet, Red, dozen	1	0		0	0	Parsley, dozen bunches	2	0		3
Carrots, bunch	0	3		0	4	Parsnips, dozen	1	0		0
Cauliflowers, dozen	2	0		3	0	Potatoes, per cwt.	2	0		4
Celery, bundle	1	0		0	0	Salsafy, bundle	1	0		1
Coleworts, dozen bunches	2	0		4	0	Seakale, per basket	1	6		1
Cucumbers	0	4		0	8	Scorzonera, bundle	1	6		0
Endive, dozen	1	3		1	6	Shallots, per lb.	0	3		0
Herbs, bunch	0	3		0	0	Spinach, pad	0	0		4
Leeks, bunch	0	2		0	0	Sprouts, half sieve	1	6		1
Lettuce, dozen	1	3		0	0	Tomatoes, per lb.	0	4		0
Mushrooms, per lb.	0	6		0	8	Turnips, bunch	0	3		0

PLANTS IN POTS.

	s.	d.		s.	d.			s.	d.		s.	d.
Arbor Vitæ (various) per dozen	6	0	to	36	0	Ferns in variety, dozen ..	0	0	to	13	0	0
Aspidistra, dozen	18	0		36	0	" (small) per hundred	4	0		0	0	0
Aspidistra, specimen plant	5	0		10	6	Ficus elastica, each	1	0		7	0	0
Azalea, per dozen	18	0		36	0	Foliage plants, var. each	1	0		5	0	0
Cinerarias, per dozen ..	8	0		10	0	Genista, per dozen	9	0		12	0	0
Cyclamen, per dozen ..	9	0		18	0	Hyacinths, large, per dozen	6	0		12	0	0
Daffodils, per dozen ..	6	0		8	0	Lily of the Valley, 12 pots	9	0		12	0	0
Dracæna, various, dozen ..	12	0		30	0	" " " in boxes	4	0		6	0	0
Dracæna viridis, dozen ..	9	0		18	0	Lycopodiums, dozen	3	0		6	0	0
Erica, per dozen	9	0		12	0	Marguerite Daisy, dozen ..	9	0		12	0	0
" hycemalis, per dozen	10	0		15	0	Myrtles, dozen	6	0		9	0	0
Euonymus, var., dozen ..	6	0		18	0	Palms, in var. each	1	0		15	0	0
Evergreens, in variety	4	0		18	0	" (specimens)	21	0		63	0	0
dozen	4	0		18	0	Tulips, dozen pots	6	0		9	0	0
						" in boxes, per dozen	0	8		1	6	0

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.	
Anemones, dozen bunches..	2	0	to	4	0	Mignonette, dozen bunches	3	0	to 6	0
Arum Lilies, 12 blooms ..	2	0		4	0	Mimosa (French) per bunch	1	0		1 6
Asparagus Fern, per bunch	2	0		3	6	Narciss, White (French), dozen bunches.. . . .	3	6		4 6
Azalea, per dozen sprays ..	0	6		1	0	Narciss, Yellow (French), dozen bunches	1	0		2 0
Bouvardias, bunch	0	6		0	9	Orchids, various, per dozen blooms	1	6		12 0
Carnations, 12 blooms ..	1	6		3	0	Pelargoniums, 12 bunches	6	0		9 0
Daffodils, double, dozen bunches	1	6		4	0	Pyrethrum, dozen bunches	1	6		3 0
Daffodils, single, dozen bunches	3	0		8	0	Roses (indoor), dozen ..	1	0		2 0
Eucharis, dozen	3	6		4	0	„ Tea, white, dozen ..	1	0		2 6
Gardenias, dozen	4	0		6	0	„ Yellow, dozen (Niels)	6	0		9 0
Geranium, scarlet, doz. bunches	6	0		9	0	„ Red, dozen blooms ..	4	0		6 0
Hyacinths (Roman). 12 sprays, and per bunch ..	0	6		0	9	„ Safrano (English), dozen..	1	0		2 0
Lilac, White (French), per bunch	8	0		5	0	„ Pink, per dozen .. .	3	0		6 0
Lilium longiflorum, 12 blooms	3	0		6	0	Smilax, per bunch .. .	4	0		6 0
Lily of the Valley, 12sprays, per bunch	0	6		1	0	Snowdrops, dozen bunches	1	0		2 0
Marguerites, 12 bunches ..	2	0		3	0	Tuberose, 12 blooms.. .	1	0		1 6
Maidenhair Fern, per dozen bunches	6	0		9	0	Tulips, dozen blooms ..	0	6		1 0
						Violet Parme, per bunch ..	2	0		3 0
						„ per doz. bunches ..	1	6		2 6
						„ (French), per dozen bunches	1	0		2 0



TWO PARASITES.

WHAT is a parasite? Well, we all know a parasite is more or less injurious, but how can we define it accurately? A parasite is simply "an organism which obtains food and lodging on or in another organism higher in the scale of life than itself." These exist both in the animal and vegetable world, and examples are so all around us that everyone can suggest cases for himself. Curiously enough the living organism of the animal kingdom is liable to attacks from a vegetable organism, and *vice versa*. Sometimes these visitors do little or no harm to their hosts; in other cases they repay the debt they owe with interest by causing severe suffering and even death.

We purpose in this article to deal with two of these pests, the one more especially affecting the health and well-being of calves and yearling stock, the other attacking the mature cattle.

We will take first ringworm, which we find prevalent mostly in calves, horses, and man; dogs also are sometimes affected, sheep and pigs rarely. It is curious, too, that this complaint should prefer young stock; seldom, or never, does a case occur on stock

over two years old. Ringworm, too, has its limits of being—that is, the disease will die out of itself without active measures being taken for its suppression, but it seems a folly and waste of time in this case to let Nature work her own cure when she takes from six weeks to three or four months to do it in. Not only is the animal losing condition during that time, but also it becomes a grand centre of infection.

A calf in a thriving condition, well fed and well cared for, will soon throw off the disease. A weak sickly calf, on the other hand, seems to give the complaint every encouragement; the disease does not die out of itself, and remedies fail to make any impression. This parasitic fungus attacks the hair of the patient, and sets up an irritation of the skin which must affect the nervous and nutritive functions.

The skin becomes rough, and is covered with pimples, which in drying and dying become scurf. This scurf and the hairs are found covered with spores or seeds of the fungus, which readily germinate and grow under favourable conditions.

Ringworm is exceedingly infectious, and exceedingly hard to get rid of. Cases have been authenticated where spore has remained some months on tree bark in winter, and then being placed in a cultivative media has grown in the usual manner. A temperature below freezing point does not affect the fertility, whilst warmth and moisture favour the growth of the spore.

When we consider how spores may be thus disseminated by the diseased animal rubbing itself against trees, posts, and the like; how it may be disseminated by the droppings of impregnated scurf, and carried on the bodies of lice, there is little wonder that ringworm is so prevalent. With care, however, this infection can be dealt with, but the matter must be taken seriously in hand, not treated in a haphazard way. Manure and litter should either be burned or ploughed in. After the floors of sheds, posts, and pillars have been treated to a wash of some disinfecting fluid, then must come the inevitable lime.

Where infested calves have been on grass a dressing of lime may be used with good result. Mouldy old sheds, rotten wood, decayed vegetable matter, all prove most excellent hotbeds for propagating the seeds, and a little trouble should be taken to remove such obvious causes of danger. As to the treatment of the animal opinions differ; whatever dressing be applied should be applied thoroughly. The scurfy crust of the scab should either be washed or currycombed off, so as to allow the curative agent free access to the fungus in the deeper tissues. Need we say that all this extraneous matter must be carefully removed and burned?

Sulphuric acid with glycerine is very effectual, and should be put on with a brush. To keep the rest of the body free from attack a dressing of vaseline will be found most serviceable.

Warble or bot fly is a trouble that is easily combatted, and it seems a great pity that farmers should be so apathetic in their efforts to remove this pest, which does so much to irritate the genus "Bos," causing cattle to be ever on the move, tearing and raging about, doing infinite harm to the milk supply, the immature beef, and, above all, to unborn calves.

We talk about the placid, ruminating cow, but how can she be placid or ruminate stung to madness by the attacks of this wretched fly? The female fly begins to lay her eggs as early as May. Maggots have been found in November on the flesh side of the hide; they are provided with a fine channel up through the hide. As the maggot grows it assumes a club-shaped appearance. The tail is at the opening in the skin, and through the tail it breathes. The mouth is downwards, and feeds on ulcerated matter caused by its perpetual suction on the flesh of the ox.

The maggot must breathe, and so, therefore, any application to the tail end will have the effect of choking the breathing apparatus, or running down into the hole will poison the maggot. Get rid of the maggot the beast grazes in comfort, and the wound has a chance of healing. The maggot leaves the warble hole itself when full grown—that is to say, about 1 inch long. Hidden on the

ground it changes to a chrysalis, and from that chrysalis emerges the warble fly, and the mischief begins again.

The maggots may, of course, be squeezed out of the hide, but a little dressing or dip put on the aperture of the warble hole is equally effectual. Grease of any sort mixed with sulphur and tar can be used without any risk. Mercurial ointment requires careful handling, and should only be put into careful hands. Prevention being better than cure, a dressing of train oil, sulphur, and spirits of tar rubbed on the spine, loin, and ribs will keep off any attack by the fly. It is a curious fact that the flies will not pursue cattle over water, nor are they so abundant where there is a little shade to be found.

Not only is damage done to stock by the constant irritation, but the hide, in itself a valuable commodity, is spoiled by the actual holes left in it, and by the weak places that have only partially got skinned once. Miss Ormerod, who is a great authority on this question, says that in one year out of 102,877 hides examined 60,000 were found greatly injured by the ravages of this fly.

If the maggot be destroyed before it gets a chance of leaving its home in the skin of the bullock, the chances of warble fly in another season are practically done away with. It has been estimated that the annual loss occasioned by this one parasite is not less than £2,000,000, and possibly far exceeds that sum.

WORK ON THE HOME FARM.

A few fine days have worked wonders to the land, the Cambridge roll is at work on the Wheat, and doubtless here and there the drill also.

The question, "What to sow?" is exercising many minds. Prices of spring corn have been very disappointing, both Barley and Oats being now much lower in price than was expected; whilst, though Wheat may be included in the same category, yet the future prospect in its case is much brighter than in the cases of the other two, the world's Wheat supply for next year being very unlikely to be an excessive one. There is, therefore, good encouragement to farmers to sow a little spring Wheat, but it must be put in at once; medium to light soils are most suitable, and white Wheat is the best to sow. There is no better Wheat than Hunter's White for this purpose.

On good soil, the sooner Oats are in the better. We have had great satisfaction from a white variety named Catterick Hero; it is a very heavy cropper, with beautifully fine straw, stands better than any, and the quality is first-class, which may be realised when we say it is a favourite for racing stable use. We think this Oat and the Black Tartarian the only varieties a farmer need want.

The cross-cutting of fallows must be attended to at once, and the drag and harrow will shortly have their turn; light lands are already in fair working trim, and no time must be lost in giving them at least one dressing, as we do not know what or how few chances we may have later on. A crop of Twitch got off now is as good as two in May. "A stitch in time" is a proverb exceedingly applicable to the cleaning of land.

Young seeds are making a welcome move, and some fields are showing quite a nice bite. The woodpigeons, however, having eaten all the Turnip tops available, are now paying special attention to the young Clover, and very injurious is the result. We are having organised raids on these birds, every available gun being brought into requisition on Wednesday afternoons to await their arrival in the woods when they come home to perch. A large number may be killed in this way if each gun gets but three or four, and we commend the system to other districts where woodpigeons abound.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

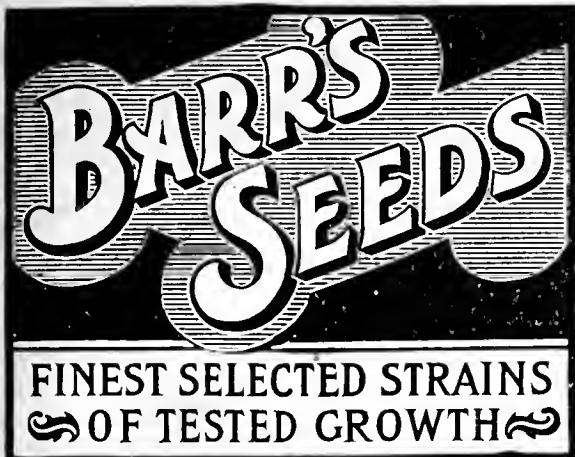
Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1897. February.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 21	30.316	45.6	40.7	W.	42.4	51.6	43.6	85.2	36.7	—
Monday .. 22	30.582	50.1	48.1	N.W.	42.2	57.0	44.6	90.2	35.4	—
Tuesday .. 23	30.621	45.1	44.3	W.	43.9	53.4	44.3	75.1	38.0	—
Wednesday 24	30.599	46.7	43.7	W.	43.9	50.0	45.3	57.9	37.1	—
Thursday .. 25	30.238	46.4	46.2	W.	43.7	52.2	45.1	66.4	40.2	—
Friday .. 26	30.210	51.9	48.3	W.	44.9	58.0	48.4	93.3	44.1	—
Saturday .. 27	30.330	44.8	42.1	N.	45.0	52.8	43.8	81.1	35.9	—
	30.414	47.5	44.8		43.7	53.6	45.2	78.5	38.2	—

REMARKS.

- 21st.—Bright sunshine almost throughout.
 22nd.—Mild, with much bright sun in morning.
 23rd.—Fine, with frequent bright sunshine.
 24th.—Fine and mild, with a gleam of sun at 4 P.M.
 25th.—Overcast, with high wind throughout.
 26th.—Mild and generally sunny.
 27th.—Sunny throughout.

A dry week, remarkable also for uniformly high temperature.—G. J. SYMONS.



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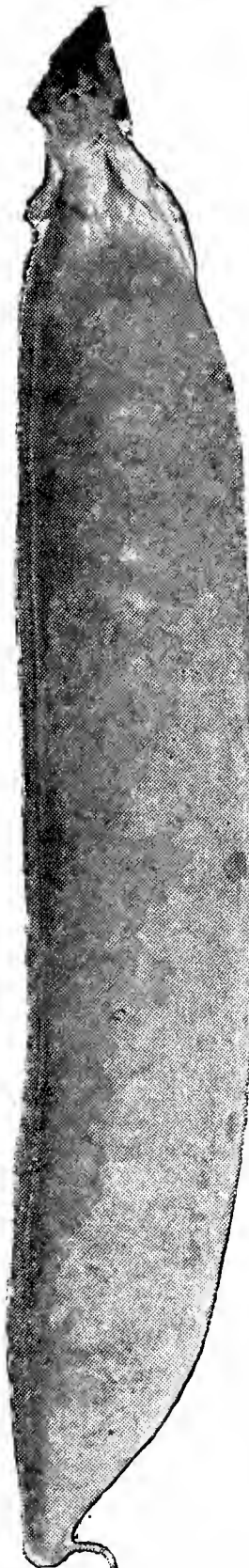
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Journal of Horticulture.

THURSDAY, MARCH 11, 1897.

FADS ABOUT FRUIT.

ON another page an alert correspondent, who likes to be up to date, if not a little in advance of it, appears to have been enjoying himself in distinguished company, and seems to have detected some "axe grinders." That is not very remarkable; they are so plentiful that we can find them almost everywhere. They are excellent men too, many of them, and not a few have done a considerable amount of good.

The occasion was the reading by Mr. George Gordon of a paper on orchards at a meeting of the Society of Arts. Mr. Gordon is a practical man, and nothing would please him better than to see the orchards of this country bearing bountiful supplies of superior fruit. He knows, too, the value of the best varieties of British Apples grown in the best condition, and how far this value exceeds that of the small uneatable varieties grown for cider. This he pointed out in the citation we gave on page 180 last week; but though his object was clear enough, and he pointed out the way to attain it—so far as it could be attained in improving old trees—the discussion seems to have been turned into other directions having little or nothing to do with the art of cultivation as applied to the production of hardy fruit equal to that from distant lands. Why has this imported fruit got such a strong hold of our markets? Because it is the result of the prudent choice of varieties, intelligent cultivation, and business-like methods in the disposal of the produce.

The discoverer of the "axe grinders" at the Society of Arts is not a cider man, and if we are correctly informed he let the meeting know it; also he seems to have been chilled somewhat by the advocacy of cold storage, while he is not likely to lead a crusade in favour of growing fruit in this country for the purpose of having it dried by the process of evaporation, and then having the dissipated moisture made good by soaking before the fruit can be used. He knows something about the drying process as conducted at Chiswick for several weeks; but one thing he does not know—namely, that one penny of profit can be shown as the result of the fairly conducted trials, for no such profit was represented

in the report allowing nothing for the cost of the machine, which was unfortunately a poor one and did us very well.

Then he is dubious as to the practical value of the cold storage system for preserving fruit having regard to its quality after being long subjected to the chilling process. Experiments in this direction have been made under the auspices of the Royal Horticultural Society, and the report of the Committee that was appointed to conduct them was published in one of the Society's journals. This was the reverse of encouraging, and if the experiments proved anything it was the impracticability of the process. Fruit cannot be kept in an artificially made winter for months or years without cost, but its flavor can be easily destroyed, and half the fruit tested in the experiment in question was rendered useless.

It is neither by drying fruit nor freezing it artificially that its value as a product of the soil can be increased in this country to an extent that it is so greatly desired; nor can the planting of under orchards for the production of grain however wholesome, or the rearing of patriarchal orchards of Apples grown for eating raw or cooked raise the standard of the fruit to anything approaching that of the imported produce that is such a weight to our cultivators and consumers. It is desirable that what can be done in improving the fruit of ancient orchard trees for home consumption and local use should be done, and we know that much good has resulted from thinning, cleaning, feeding, and grafting; but not one ancient tree out of a thousand can be made to produce fruit that can hold its own in our markets against the produce of young trees of well-chosen varieties planted in good well-prepared soil and subjected to a routine of sound cultivation.

The only safe and sure course to follow in effecting material improvement in our national fruit supply is in the direction just indicated, and it is to be feared that the parade of counter propositions under a very naive but a tendency to divert the mind of men from the best of all methods—systematic training and cultivation—for securing fruit of the highest excellence and in a certain way or other get so well and give equal satisfaction to growers and consumers.

There were some other points than those of the late Mr. Stanley Rivers with me. The best fruit is the product of cultivated soil and cultivated plants; and it is encouraging to know that the best home-grown Apples of the last season's crop retained a great power that any that reached our markets from abroad. The vast mass of the "best" and they can only be produced by the exercise of sound judgment and intelligent routine methods of cultivation.

Next to the autumn the present is the best time for planting trees of all kinds for profit or ornamental purposes. The swelling of the buds is the first incentive to the immediate production of fresh root fibres. An enormous amount of spring planting is done in parks and gardens, and we were in brisk progress now. The most important point in connection to observe is the taking of special care in keeping the roots moist in transit. If they arrive dry they should be placed in water for some hours or the trees kept wet with root and water, by syringing and covering with damp mats. Then after pouring all broken roots unceremoniously, planting carefully and well, smoothing well back the long, strong branches for retaining the evaporative surface but leaving all the short and smaller ones full length for their terminal buds to develop leaves as soon as possible. The trees will be quickly established. Not improbably some of them may grow quite as well as those planted last autumn and those which do not will have a great advantage next season over those that may be planted at the end of the present year. Let the planting of fruit trees go on; and if old stumps, etc. are to be improved the work, to be satisfactory, must be done under the supervision of experts. Much more harm than good may be done, and has been done, by the hacking of trees by unskilled men without experienced guidance.

DECORATIVE PLANT HOUSES.

In private gardens we look for permanent embellishment of our plant houses by such little aids as so many of the simpler forms of plants are able to give, some of which would otherwise scarcely claim the right of association with the rightful occupants. However that may be, we have a great variety of interesting, suitable, and beautiful objects when thus employed which are especially adapted to this adjunctive purpose, and the eye of taste will not fail to discover abundant opportunities for the deft hand to adorn what may be, and often is, the severely plain, or the purely practical. From the coldest of cool houses to the warmest of tropical ones there are not any but what offer more or less facility for the purpose, but the latter are *par excellence* amenable to this treatment with an additional charm and character.

In all cases, and for various purposes, the virtues of virgin cork commend it for free use. Its comparative cheapness, when taking its durability into account, being a strong feature in its favor. As an edging for the stages in strips of about 4 inches wide, I know of nothing which gives such universal satisfaction, and in those houses where warmth and a corresponding degree of moisture are maintained the simple plan of filling in the interstices—the joints—with bits of our indigenous Fern-like moss, makes a foundation for an edging of verdure particularly pleasing. Common as is this moss, for in our woods it can be gathered by cartloads, one never tires of admiring its beauty, and now in singing its praises the desire to call it by its proper name comes strong upon me, having to confess, with some shame, that it is unknown, hence a sample will accompany this to gratify the editorial eye, and lighten my darkness.

The peculiarity about this moss is that, hardly child of Nature as it is, it fairly revels in the heat and moisture of a tropical house when lovingly clinging to the virgin cork, but on any other foundation it invariably withers or withers and quickly dies. This edging with some little planting, of which moss alone leaves nothing to be desired, with one exception—viz., the or any similar edging provides a harbour for insects and other "pests." However, those who have noticed the vast difference between a bare stage and one so draped will probably think that such small gains are worth the trouble consumed in watching them.

On the broad question of the permanent decoration of our plant houses the wall need only be mentioned. Happy is the man who has a back wall to his house, and happier still if he has an end one too. He has, I am sure, made the best use of such an opportunity, but I may remark in passing that one of if not the best one I have seen made of this situation was that of a tropical house in which the back wall was clothed with three varieties of *Alb.-clay-cactus*—*fulgens*, *Lobbianus*, and another not remembered. These, planted at the base of the wall had climbed to the top, some 12 feet, and thence depended in long streamers massed with brilliant blossoms, and were as useful as ornamental, being much prized when out as trailers for long tramper races. Potted argives it also as cheap wall climber for a hot-house, whilst for those on the largest scale there is no nobler plant than the *Monstera*. Owing I suppose to the subject being not having been something of a novelty it is carrying me further than I am sure is necessary, hence we will return to the stages, where presently an opening exists to insert a few facts.

If whatever material our stages are made, whether of wood, iron or stone, the virgin cork is eligible as an edging. In the two latter cases a substantial lead laid along the margin will provide sufficient foundation for seating on the cork. At one time I used Slater's nails for this purpose, but the flat heads being somewhat conspicuous when rusted, ordinary French wire nails give as good a grip, and are all but invisible. Stages generally being covered with some moisture-holding medium such as fine gravel, breeze, or other material, sea gravel put through a half-inch meshed sieve is clean and bright, and very satisfactory, even but a slight covering will form a foothold for various things used in marginal planting, supposing, of course, that moisture is always retained; yet it can hardly be overlooked that our subject in all its phases is more or less means to that end—the retention of moisture.

Supposing our staging being edged with cork is covered about as much deep with the material mentioned, the labour of planting merely consists in the insertion of small cuttings, rooted ones by preference, just inside of the cork boundary; and from time to time at odd moments stray pieces or seedling Ferns will be comfortably tucked in until the edge of our stages becomes a thing of beauty, and a joy for—say twelve months, then possibly it will have become a little poky. This will at the present season generally be the case, but coming as it does when we are setting our plant houses in order for another round, the shears may be employed to clip the whole concern close into the roots, and our edging will break into fresh beauty almost immediately.

There is one plant which, in its cheerful tone of colour and graceful manner of growth, stands pre-eminent for the purpose, this is *Panicum variegatum*. So far as its foliage is concerned its character is not aggressive, and it forms an admirable setting, setting off rather than hiding out anything else employed. It is so common this *Panicum*, so well known, that one is diffident of further extolling its merits, but they are many, and to those who have not seen it thus grown, gracefully hanging some 2 feet deep from a long length of staging, I would especially commend it to their notice. The white and the red-veined *Futtonias* are charming when established between the joints of the cork, to which they take kindly. One other plant only will I mention here, that is *Pilea muscosa*, the Artillery plant, which grows apace under these conditions, and is in every way admirable for the purpose, and which is too amenable to any restriction if inclined to grow too strong.

Under the stages not an inch of bare space need obtrude itself to catch the eye, provided, of course, that the hot-water pipes do not interfere, and even in this case much may be done by the crudest form of rockwork. According to space and position many things will flourish here, from a carpeting of the common *Lycopod* to handsome *Begonias* of the Rex type. *Panicum plicatum* is a plant more seldom met with than its merits deserve, and if planted in odd corners near the margin of the walks, will often be found useful for cutting, its bold plaited foliage being well adapted for decoration. Where this plant is established seedlings spring up, which, if potted and grown as specimens for house decoration, take on much of the character of *Curculigo recurvata*, for which I have seen it mistaken. That ubiquitous plant *Saxifraga sarmen-tosa* (Mother of Thousands or Hen and Chickens) is as happy, if not happier, under a stage in any temperature as it is in its natural element—the open air, and gives a kind of alpine feature, growing amongst a few rough stones or boulders. The tricoloured leaved variety is a gem when it retains its character.

Our subject is sufficiently comprehensive to include and beautify all the plain features of our plant houses internally at a minimum of expense of either time, labour, or material. In one small stove house a large iron water tank set on the floor supported the central stage. As it monopolised as much space as could well be spared we could not see our way to hide it by even so much as a wood casing, which could again have been covered by cork. It was an eyesore, to me at least: but *Ficus repens*, a plant which, if it ever had a popular name bestowed upon it, should be called the Gardeners' Friend, came to our aid, and a few rooted pieces inserted in the joints of the flooring close up to the tank went onward and upward, covering with delicate tracery the unsightly object until it ceased to offend.—INVICTA.

[* The moss referred to has long been known as *Hypnum proliferum*, or the Proliferous Feather Moss. It is probably the handsomest of our native *Hypna*, of which we have in Britain about seventy described species. This species is common in most shady woods and moist hedgebanks, its fruiting season being November and December. It is known and acknowledged by recent authorities on moss as *Thuidium tamariscinum*.]



DECIDUOUS DENDROBIUMS.

LIKE many other Orchid genera, this favourite genus does not lend itself to collective cultivation exactly, but most of the deciduous species may be grown together under very similar conditions. They are a beautiful class of plant, their colours rich and striking, of exquisite texture, and delightful form. Few things are more pleasing than a well-grown and profusely flowered specimen, say of *D. Pierardi*, its long pendulous stems, wreathed with the soft pink blossoms, having a remarkably fine effect. The showy *D. crassinode* again, when in good condition, finds a host of admirers, any of whom seeing it for the first time will assuredly be lavish with their praise.

Even such pigmy forms as the little *D. Loddigesii*, or *pulehellum* as it is generally known in gardens, have most exquisite flowers, produced moreover in great abundance considering the size of the plants. Similar to these in colour, but totally different in habit, is *D. Devonianum* (fig. 41), a plant worthily named after the founder of one of the most celebrated collections. This produces a perfect shower of bright and telling blossoms, and no collection of *Dendrobiums* can be complete unless this grand species is well represented.

And so one may go on in praise of this section, but possibly most of our readers are more anxious to know how to produce these lovely flowers than to read a dissertation upon their charms.

One of the first necessities for their culture is a well-heated, lighted, and ventilated structure, for from the time the young shoots appear at the base of the flowering stems until the new pseudobulb has attained full size no check of any kind must be allowed. At first these young shoots are rather impatient of sunlight: it is apt to scald them, as the term goes, especially if, through neglect of early morning ventilation, any of the night moisture is still about them. But after they have made a little progress, when the



FIG. 41.—DENDROBIUM DEVONIANUM.

leaves have commenced to unfold and the base of each is getting a little hardened, they will stand with impunity a good deal more sun than most Orchids.

As hinted above, early morning ventilators should never be neglected, in bright weather more especially. Before the sun reaches the house a chink of air should be put on, and this must be increased, and every part of the house thoroughly damped as soon as a slight rise in temperature can be noticed. The atmosphere will then feel buoyant and fresh, and will more nearly approach the conditions that obtain in the native habitat of the plants than would be the case were the ventilators kept close until some stated temperature was reached. If amateur cultivators would use this sense of feeling more, and rely less upon hard and fast rules, hydrometers, thermometers, and other so-called useful aids to Orchid culture, we should hear less complaints as to Orchids being difficult to grow.

Soon after midday—more or less according to the aspect of the house—will be "shutting up time," and the floors, stages, and walls of the house must be thoroughly damped, first taking off the air, and last of all removing the shading. The plants in most cases are better for a sprinkling at the same time, and if by these means the temperature of the house runs up to 90° or even 100° all the better. Growth will be very rapid, yet owing to the amount of light and air received the texture of the forming bulbs will be firm.

The length of time the plants remain in this heat must depend to a great extent upon the species. Some finish up their growth much earlier than others, one of the first being the popular *D. Wardianum*. One of the last may be mentioned—viz., *D. superbum*, which takes a long time to mature its immense stems; but I will cite no more instances, and rather leave readers to observe for themselves the peculiarities of individual kinds. As a rule, as soon as the last leaf is matured slightly drier conditions of the atmosphere are advisable, and in every case the plants, if they have been grown as described, will by this time be better for full exposure to the sun. It is not more important to ripen a Peach shoot thoroughly than it is to ripen the stems of these deciduous *Dendrobiums*. They cannot flower properly without it, and although this matter has been mentioned time after time in the horticultural press, one is always coming across instances of the advice being disregarded.

Quite as important is a thorough rest after ripening, indeed it may almost be described as part of the ripening process. During

this resting season the plants do with very little heat, a minimum of 48° or so being ample, but they must be kept dry. No water should be given unless the stems shrivel, and this is of rare occurrence with the plants described. Then with the lengthening days in spring flowers in plenty will be produced. With regard to receptacles for growing them in, these must of necessity vary with the habit of the species and the quality of the roots and compost. It is, however, generally safer to under rather than over-pot, as the roots in many cases are not ambitious in leaving the centre of growth, but prefer to coil round and round each other, and often in a congenial compost form a dense ball of fibre.—H. R. R.

EELWORM AND TOMATOES.

I AS well as Mr. Bradley (page 118) am desirous of getting some practical information respecting eelworm in soil. I am now erecting a Tomato house 100 feet long on an old pasture which abounds with eelworm. Does Mr. Abbey advise a 10 per cent. lime dressing in this case or what? We have yet to see the result of Mr. Iggulden's experiments and experience with Tomatoes, but I think market growers like myself would prefer rather to destroy the eelworms than rely altogether on good cultivation such as Mr. Iggulden advises in the case of Cucumbers. My experience differs from Mr. Bradley's. I have Tomatoes doing well in soil which six weeks previous to planting had received a 10 per cent. lime dressing, although I am surprised to notice plants in the same soil dying off at the ground level, as shown on page 545, June 11th, 1896. Can Mr. Abbey account for this?—T. P. R.

["T. P. R." does not say whether he intends to use the top 3 inches of the old pasture with its turf as a compost or employ the land *in situ* for growing Tomatoes. If the first, and he can wait six weeks, I should not hesitate to cut the turf, and mix with it 10 per cent. of the best freshly burned chalk lime, slaking, and incorporating along with three-quarters of a pound of best quality kainit, and 3 quarts of fresh dry soot per cubic yard. After lying the time named break up, and place in the bed or border 10 to 12 inches deep, having previously placed in the requisite drainage material, preferably chalk or old mortar rubbish.

Before placing out the Tomato plants apply a dressing of the following mixture:—Fish meal ("white fish"), 10 parts or lbs.; mineral superphosphate (34 to 37 per cent. soluble phosphate), 2½ parts or lbs.; nitrate of soda (95 per cent.), 2½ parts or lbs.; mix and apply 3 ozs. per square yard, and point in shortly before planting.

When the plants have got well hold of the soil and commenced bearing, use top-dressings of the fertiliser given on page 93, lowest formula, about 4 ozs. per square yard, mixed with three times the amount of sweetened horse droppings or short fermented farmyard manure, supplying at about three weeks intervals.

If the intention is to use the land *in situ*, I advise a dressing of best chalk or land lime, freshly burned, 1½ cwt. per rod, placing the lime in little heaps convenient for spreading, slaking with only sufficient water to cause the lime to fall to apparently dry powder, and whilst hot distribute evenly on the turf. Allow the lime to act for a few days, then bastard-trench the land, placing the turf at the bottom, taking it off about 3 inches thick, and not placing more than 7 to 9 inches of soil upon it, or even not that if the soil be shallow; it will suffice if the turf be so covered as not to interfere with cultural operations.

When the land has been broken up apply a dressing of stable or farmyard manure thoroughly decayed, 1½ cwt. per rod, and ½ lb. per square yard of air-slaked chalk lime and fresh dry soot in equal parts by measure, and dig in with a fork, taking small spits so as to secure even incorporation and not disturbing the turf. Before planting apply 4 ozs. per square yard of the mixture last given on page 93 and point in. After making the soil firm, to insure sturdy growth, put out the plants, and afterwards feed with the fertiliser as top-dressing, according to circumstances, in the manner before mentioned. If eelworm give trouble under the foregoing régime let specimens be kindly sent to the Editor.

"T. P. R." will have seen what Mr. Iggulden has to say about Tomatoes and their diseases on page 174, the "little sensation" having developed into a deluge drowning eelworms and fungi. Albeit some of both appear to have survived the turbulence of the waters, and these Mr. Iggulden disposes of by means of Little's soluble phenyle. It is a remedy apparently and also a preventive, as he says, on page 130, "A soaking of phenyle did good service when used on soil in which eelworms were numerous."

After disposing of Mr. Bradley's dictum that 10 per cent. of lime was not safe by a direct negative proof, "T. P. R." asks if I can account for the Tomato plants he describes going off. Mr. Iggulden demonstrates the same thing—namely, the inefficacy of lime as a preventive of the plants "dying off." This is a phase of the subject I was not unprepared for, as I have found other means of infection than by the soil in respect of fungi.

Of these, three species, if not four, are carried over from year to year quite independently of the soil, and any or all of them may cause "black stripe," "drooping," "sleeping," or "sudden collapse" disease, for the terms are equally applicable to all. Unfortunately "T. P. R." did not submit specimens to the Editor, and in consequence no one can tell him what organism, if any, caused his plants to die off at the "ground level." Even when they are to hand it is not always possible to satisfactorily account for the cause, as the agent may not be present

in the case of certain animals, and in that of fungi not sufficiently developed for identification.

One thing, however, is certain in both "T. P. R.'s" and Mr. Iggulden's case—namely, the plants do not die off without cause; but in neither instance is there anything to show infection by means of the soil. Indeed, the opposite is clearly indicated by the untreated house in Mr. Iggulden's case being quite as free as the others that were treated preventively against fungoid diseases. I say fungoid, because Mr. Iggulden chiefly confines his remarks to the diseases of that class in Tomatoes, and very cleverly points to the advantages of precautionary measures in lessening recurrence and mitigating the severity of attacks by the use of substances that profit him in his culture.

To his banter I take no objection, but am glad to find him making such good use of his "innings" as to show that after all there is only a difference in name between science and practice. Now he is "in" I hope he will not come out until he has told us what Tomato diseases are carried over from year to year with the seed, and can only be avoided by starting with "plants raised from seed saved from fruit grown on healthy plants." Having thus "hit the nail on the head" let Mr. Iggulden clench his arguments by showing us the disease-germ in the seed, tell us what it is, and demonstrate its life history from the pushing of the germ-tube to the reproduction of seed or resting-spore. I can assure him that it is a very practical subject, and so far as I can see just as easy to attain as growing Cabbages.

There is no "mystery" about any organisms causing "troubles" in Cucumbers and Tomatoes; at least, all I have inquired into lead very practical lives, and appear bent on living and reproducing to the best of their power. But even these beings are subject to the balancing forces of Nature, plagues and epidemics breaking out amongst them, which are as necessary to a proper equilibrium as is the importance of adopting repressive measures in civilisation and cultivation in order to prevent the spreading of contagious diseases.—G. ABBEY.]

ROYAL HORTICULTURAL SOCIETY

DRILL HALL, MARCH 9TH.

THE exhibition held on the above date was one of the best that has ever been seen in the Drill Hall, and taxed the space in the building to the utmost. The floral section was nothing short of superb, both for quality and variety. Fruits were not so largely shown, but Orchids were rich in quality.

FRUIT COMMITTEE.—Present: G. Bunyard, Esq. (in the chair); with Rev. W. Wilks (Secretary), and Messrs. J. Cheal, J. H. Veitch, G. W. Cummins, A. F. Barron, J. Willard, T. J. Saltmarsh, F. Q. Lane, G. Reynolds, H. Balderson, J. Smith, T. Farr, G. Sage, A. J. Laing, C. Herrin, W. J. Empson, T. Fife, A. Dean, and J. Wright.

Mr. John Watkin, Pomona Farm, Hereford, sent fruits of Lord Hindlip Apple to show its keeping quality. The fruits were in excellent condition. The award of merit granted last year was unanimously confirmed. Mr. G. Lovelock, The Gardens, Normanton, sent Diamond Jubilee, not unlike Royal Somerset; very acid, and passed.

Mr. Charles Ross sent fruits of Mottled Russet Apple; small, and lacking in quality, and no award was made. Messrs. Lane & Son sent Apple St. John's Seedling, resembling Hornead Pearmain. Messrs. W. & J. Brown, Stamford, sent fruits of Lavender's Seedling Apple, of the Wyken Pippin type, but it lost an award of merit by three votes. Mr. J. Hudson sent from Gunnersbury House Gardens splendid examples of Newton Wonder Apple, the same fruits he exhibited at the Crystal Palace in October—very fine, and a cultural commendation was unanimously awarded.

Mr. G. Wythes sent excellent dishes of Witloof and Asparagus grown under leaves—very creditable produce indeed, and a cultural commendation was at once granted. Mr. Empson, Amptill, sent a collection of Apples, with excellent Seakale, Mushrooms, Asparagus, and Broccoli (silver Banksian medal). E. Dresden, Esq. (gardener, Mr. Tallack), Livermere Park, Bury St. Edmunds, sent thirty dishes of Apples in excellent condition (silver Knightian medal). C. J. Massey, Esq. (gardener Mr. Day), Galloway House, Wigtonshire, sent fourteen dishes of very good Apples (silver Banksian medal).

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with the Rev. G. H. Engleheart, and Messrs. H. B. May, R. Dean, R. Owen, G. Stevens, J. F. McLeod, T. Peed, C. J. Salter, C. E. Jeffries, G. Gordon, J. D. Pawle, J. W. Barr, C. E. Pearson, C. E. Shea, J. Walker, H. J. Jones, H. J. Cutbush, D. B. Crane, E. Beckett, H. Turner, G. Paul, E. Mawley, H. Herbst, J. Laing, J. Hudson, and R. M. Hogg.

Messrs. W. Cutbush & Son, Highgate, arranged a semicircular group of plants, comprising Forsythias, Pyrus, blue Primroses, Ericas, and superb Malmaisons edged with Maidenhair Fern. This was a charming exhibit. Miscellaneous flowering plants were splendidly staged by Messrs. J. Peed & Sons, Norwood Road. *Prunus sinensis* fl.-pl., Azaleas in variety, Lily of the Valley, Cyclamens, and Boronias were conspicuous. From Messrs. W. Balchin & Son, Hassocks Nurseries, came superb Boronias and Primulas, while Messrs. Paul & Son, Old Nurseries, Cheshunt, sent Roses and rock plants. There were Saxifragas, Hepaticas, Megaseas, Primulas, Drabas, Hellebores, and others in pleasing variety.

Well grown plants of Cyclamens in various colours were staged by Mr. W. Slogrove, gardener to Mrs. Crawford, Gatton Park, Reigate. These were good examples of culture. Mr. J. Douglas, gardener to Mrs. Whitbourne, Great Gearies, sent a showy bank of Cinerarias. Plants of

Azalea mollis × *sinensis* seedlings were staged by Messrs. R. & G. Cuthbert, Southgate. They were very profusely flowered. Fibrous-rooted Begonias smothered with flowers and Star Primulas composed the exhibit from Messrs. H. Cannell & Sons, Swanley, who also sent flowers of Cinerarias. Mr. Perkins, gardener to the Hon. W. F. D. Smith, Henley-on-Thames, sent a collection of splendid Amaryllis, including several varieties that have been honoured by the Society in previous years.

Probably the finest individual exhibit in the floral section of the show was that of Messrs. J. Veitch & Sons, Limited, Chelsea, who staged Primulas. The plants, in 48-pots, were dwarf, clean in foliage, and carrying shapely, pure coloured flowers in considerable numbers. Both double and single varieties were represented by dozens of plants. Amongst the singles were the Queen, Veitch's New Salmon, Superb Fringed White, Superb Fringed Red, Gigantic Rose, Gigantic Red, Gigantic White, Chelsea Scarlet, Chelsea Blue, and Gigantic Blue; while such doubles as Lilac White, Blue, Rose, and Salmon were in superb form. The same firm also sent Lachenalias in variety, Rhododendron Early Gem, *Spiraea confusa*, *Cytisus elongatus*, and magnificent Amaryllises, such as Clonius, Leontes, Hecla, Zephyrus, and others.

The St. George's Nursery Co., Hanwell, sent a group of well-grown Cyclamens, producing flowers of considerable size and substance. The fragrance diffused throughout the Drill Hall was from the Freesias staged by Mr. J. W. Mowbray, gardener to Major the Hon. H. C. Legge, Fulmer, Slough. The plants showed admirable culture, the number of flowers that they were carrying being enormous. Cut blooms in boxes and on plants of Camellias from Messrs. W. Paul & Son, Waltham Cross, made a very conspicuous exhibit, such as is too seldom seen at the Drill Hall. The flowers were of the best varieties. Messrs. Paul also sent plants of Rose Enchantress.

Messrs. Barr & Sons, Covent Garden, had a stand of hardy flowers. There were Hellebores in variety, brightly coloured Chionodoxas, profusely flowered Megaseas, Daffodils, besides Saxifragas, and others. Mr. J. May, Twickenham, staged fine Cyclamens; and Messrs. J. James and Son, Woodside, Farnham Royal, Slough, sent Cinerarias remarkable for the high quality of their flowers. The colours were greatly diversified, clear, rich, and the blooms of superb shape and substance. This was probably the finest collection this grower has ever staged. Messrs. J. Laing & Sons, Forest Hill, staged miscellaneous foliage and flowering plants, amongst which Clivias were most conspicuous.

Mr. I. House, Westbury-on-Trym, Bristol, sent specimens of the Californian Violet. It is a fine variety, being hardy, free, and fragrant. Mr. Chas. Turner, Royal Nurseries, Slough, sent baskets of Violets Italia, Princess of Wales, Amiral Avellan, and others. The first prize for a collection of Hellebores went to Messrs. Paul & Son. Mr. G. Mount, Canterbury, staged superb cut Roses, including La France, Captain Haywood, Caroline Testout, Catherine Mermet, and others.

ORCHID COMMITTEE.—Present: S. Courtault, Esq. (in the chair); with Messrs. J. O'Brien, H. M. Pollett, H. Ballantine, J. T. Gabriel, W. H. White, H. A. Burberry, J. Jaques, T. W. Bond, W. H. Young, F. J. Thorne, E. Hill, W. H. Protheroe, A. H. Smee, T. B. Haywood, and C. Winn.

Messrs. F. Sander & Co., St. Albans, staged a small collection of Orchids, including *Miltonia cuneata*, *Lycaste Skinneri*, Cattleyas, and several others. Mr. W. H. White, grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, sent a few Orchids of great interest. Some superb Dendrobiums, Masdevallias, and Cypripediums were noticeable. Dendrobiums were sent by Mr. Bond, gardener to C. L. N. Ingram, Esq., Godalming, other growers also sending Orchids in variety.

Messrs. J. Veitch & Sons, Ltd., staged a superb collection of Orchids, amongst which many beautiful examples were seen. There were numerous Dendrobiums, *Aspasia* being remarkably well coloured, Cattleyas, Cypripediums, and others.

MEDALS.—Floral Committee.—Silver-gilt Flora medal, Messrs. W. Paul & Son, Camellias; bronze Flora, Mr. J. W. Mowbray, Freesias; silver-gilt Banksian, Messrs. J. James & Sons, Cinerarias; St. George's Nursery Co., Cyclamens; Messrs. J. Veitch & Sons, Ltd., Amaryllis; silver Banksian, Messrs. W. Slogrove, Cyclamens; Perkins, Amaryllis; Barr & Sons, hardy flowers; J. May, Cyclamens; J. Peed & Son, plants; Balchin & Son, Boronias; J. Douglas, Cinerarias; G. Mount, Roses; J. Laing & Sons, plants; and bronze Banksian, Messrs. R. & G. Cuthbert, Azaleas; Paul & Son, alpine plants; H. Cannell & Sons, Begonias and Primulas. Orchid Committee.—Silver Flora, Messrs. J. Veitch & Sons, Ltd., and T. W. Bond; silver Banksian, Messrs. F. Sander & Co., and W. H. White.

CERTIFICATES AND AWARDS OF MERIT.

Bulbophyllum Ericsoni Krangleri (E. Hill).—The sepals of this are green spotted with brown, the narrow petals being green. The lip is maroon (first-class certificate).

Chionodoxa Lucilæ alba (Barr & Sons).—A pure white form of the well-known type (first-class certificate).

Cotoneaster horizontalis (Paul & Son).—A dwarf form, with freely produced rich scarlet berries (first-class certificate).

Cyclamen grandiflora alba (St. George's Nursery Co.).—A fine pure white form (award of merit).

Cymbidium eburneum (R. B. Lowe).—A magnificently grown specimen of this well-known Orchid (first-class certificate).

Cypripedium hirsuto-Sallieri (W. H. White).—The parentage of this hybrid is told by its name. The dorsal sepal is greenish yellow with a broad white band. The lip is greenish yellow sparsely suffused with brown. The petals are soft rose at the tip and yellow at the base (award of merit).

Dendrobium Ashworthi intertextum (J. Veitch & Sons, Ltd.).—This is a chaste variety with white sepals and petals and a cream coloured lip. The throat is bright maroon (award of merit).

Lycaste Skinneri pulcherrima (F. Sander & Co.).—The colour in this variety is softer than in the type.

Masdevallia Pourbaixi (W. H. White).—Orange yellow is the colour of this fine Masdevallia (award of merit).

Odontoglossum crispum, *Ami Charles* (L. Linden).—White, suffused with purple, and with abundant chocolate spots, is the colour of this variety (award of merit).

Odontoglossum crispum Kegeljani (L. Linden).—A fine chocolate spotted form (award of merit).



NATIONAL CHRYSANTHEMUM SOCIETY.—DIAMOND JUBILEE CLASSES.

THE following special classes find a place in the schedule of prizes offered at the exhibition of the above Society at the Royal Aquarium in November next, and are in commemoration of Her Majesty the Queen attaining to the sixtieth year of her reign.

Thirty-six cut blooms of Chrysanthemums—viz., twenty-four Japanese and twelve incurved, distinct, novelties introduced in 1895, 1896, and 1897, or not yet sent out; to be shown on ordinary boards for Japanese blooms; all seedlings and otherwise to be correctly named, the twelve incurved varieties to form the front line of the stand. Prizes—£5, £4, £3, £2. The trade only.

Thirty-six blooms of white, yellow, and crimson Japanese Chrysanthemums, in twelve varieties, three blooms of each, to be shown on ordinary boards, but with 6 inches of clear stem above the boards; Chrysanthemum foliage, not necessarily that of the particular variety, to be shown with each flower, not on its stem, but on a separate stem attached to it. Open to all. Turner Memorial cup and £4, £4, £2. The cup to become the property of the individual winning it two years in succession or three times in all. The cup to be held by the winner from year to year on the same conditions as the Holmes' Memorial cups are held. Exhibitors in the classes for the Holmes' Memorial cups cannot compete in the foregoing class.

Twenty-four dishes of Apples, nine of them to be varieties in cultivation in this country at the time of the accession of the Queen in 1837, the remaining fifteen varieties introduced during the past thirty years, these to have the year when sent out and by whom, placed on the card with the name of the variety, five fruits of each to be shown. The fruits staged in this class need not have been grown by the exhibitor, but must be United Kingdom produce. Open to all. £5, £4, £3, £2, £1.

The undermentioned varieties were in cultivation, among others, at the time of the accession of the Queen:—Alfriston, Ashmead's Kernel, Beauty of Kent, Blenheim Pippin, Cellini, Cornish Gillyflower, Cat's-head, Duchess of Oldenburg, Dumelow's Seedling, Emperor Alexander, Ecklinville, Flower of Kent, Fearn's Pippin, Gloria Mundi, Golden Noble, Gravenstein, Golden Russet, Hollandbury, Hawthornden, Margil, Mannington's Pearmain, Newtown Pippin, Norfolk Beefing, Ribston Pippin, Red Quarrenden, Royal Russet, Scarlet Nonpareil, Waltham Abbey Seedling, and Winter Pearmain.

ELECTION OF FLORAL COMMITTEE.

ON Monday evening last the General Committee of this Society held a meeting at Anderton's Hotel, Fleet Street, Mr. T. W. Sanders being in the chair. The Secretary having introduced that gentleman as the new Chairman of the General Committee, he replied, expressing his desire to hold the reins impartially, and hoped to do honour and credit to the Society in his new position.

The minutes of the previous meeting were then read and confirmed, after which several elections took place, the principal one being that for the Floral Committee. Messrs. Crane and Taylor were nominated as scrutineers, and it was a noticeable fact that competition on this occasion was anything but severe. There were seven vacancies to fill and only nine members proposed. The following were successful, figures after the names being the number of votes that each candidate obtained.

Messrs. E. Beckett, 32; T. Bevan, 30; W. Mease, 32; R. Owen, 27; Geo. Stevens, 30; J. H. Witty, 32; and Higgs, 20.

A vacancy having also occurred on the General Committee Mr. Willis was elected to fill the place. It was then proposed and carried that Mr. Thomas Bevan should again be Chairman of the Floral Committee.

TADCASTER PAXTON SOCIETY.—On the evening of March 4th Mr. M'Intosh, York, read an excellent paper before the members of the above Society on "Some Thoughts in Connection with Potting, Watering, and the Growth of Plants." The greatest interest was evinced by the members present, who passed a hearty vote of thanks to Mr. M'Intosh for coming from York to read such a scientific and practical paper.



WEATHER IN LONDON.—The weather in London during the past seven days has been most unpropitious both for plant and human life. The frequent rains with the heavy gales of wind have done much damage, and it is almost impossible for any work to be done on the land. Nearly every day since our last issue went to press rain has fallen more or less, though on Tuesday morning there was a sharp white frost. At the time of going to press on Wednesday it is bright and fine.

WEATHER IN THE NORTH.—There has been frost of from 2° to 5° on three mornings during the week ending the 9th inst., and on several others the thermometer has stood at 32°. While cold winds have been prevalent, some of the days have been fine, Sunday especially so for the season. Monday was colder, and Tuesday morning disagreeably wet, with cold easterly wind.—B. D., *S. Perthshire*.

ROYAL BOTANIC SOCIETY.—At a meeting of this Society held last Saturday, Mr. John Birkett, F.L.S., in the chair, the Duke of Bedford, Sir G. Hamond Græme, Bart., and nineteen others were elected Fellows. A paper was read by Mr. Martindale, calling attention to the great desirability of establishing in London an institution for the purpose of teaching botany similar to those in existence on the continent, and proposing that the Council should take charge of the scheme and utilise a portion of their ground for the erection of the necessary buildings. Among those present who gave the scheme their hearty support were Professor Oliver, of University College; Mr. D. H. Scott, of Kew; Professor Henslow, Professor Greenish, Mr. M. Carteghe, and Mr. E. M. Holmes of the Pharmaceutical Society, and many other eminent scientists.

DEATH OF MR. CHARLES SHARPE.—We regret to hear of the death of Mr. Charles Sharpe, in his 69th year, which is said to have occurred rather suddenly at Sleaford on Monday last. The deceased gentleman was head of the great firm of seed growers and merchants, which has long enjoyed, as it deserved, a national reputation. Mr. Charles Sharpe was widely known and respected in the Kesteven division of Lincolnshire, in which he resided, and of which he was Magistrate and Alderman, also a prominent member of the County Agricultural Society. Mr. Sharpe was a gentleman of broad views, a sturdy friend of allotment holders and farmers, but they were not quite strong enough to return him to Parliament in contest with his then powerful neighbour, Mr. Chaplin of Blankney, and now President of the Board of Trade. The Blankney estate is now, we understand, in the possession of Lord Londesborough.

WAKEFIELD PAXTON SOCIETY.—Mr. A. E. Benney of Bradford was the essayist at a recent meeting, and his subject was "All About a Daisy." Mr. Milnes, J.P., presided, Mr. J. G. Brown being in the vice-chair, and there was a large attendance of members. Mr. Benney said the Daisy belonged to the Compositæ, the largest natural order of plants, and which had more flowers or florets than any other family. There were 100,000 plants in this order, and 10,000 of them belonged to the Daisy family. A single Daisy would have from thirty to forty flowers; they multiplied by offsets, not simply from seed, and in their growth they exterminated all surrounding vegetation. The Dandelion, Chrysanthemum, Dahlia, and Anemone were of the Daisy order. By means of diagrams Mr. Benney clearly illustrated the peculiar structure of the leaves and florets, and also explained the process of fertilisation of the seed.

BIRMINGHAM GARDENERS' ASSOCIATION.—The fortnightly meeting was held recently in the Athletic Institute as usual in the hope of hearing a lecture, entitled "Orchids and Orchid Hunting," by Professor W. Hillhouse. Owing, however, to illness he was unable to be present, but sent an excellent representative in Mr. A. H. R. Buller, B.Sc., of Mason College, who discoursed on "Insectivorous or Carnivorous Plants" before a large and appreciative audience. The highly interesting subject was illustrated by models and diagrams of the various plants embodied. Especially interesting were such as preserved specimens of the "pitchers" of *Nepenthes Mastersiana*, and others of the class, as insect catchers and devourers, as likewise was a large model of "Venus's Flytrap" (*Dioncæa muscipula*). Various other insectivorous plants were also adverted to. The pleasure of the meeting was further enhanced by a display of cut flowers.

GARDENING APPOINTMENT.—Mr. William Pither, for the past seventeen years with Mr. Weaver, Oakley Hall Gardens, has been appointed head gardener to W. W. B. Beach, Esq., M.P., at Oakley Manor, Basingstoke.

SUTTON'S STAR PRIMULA.—This was one of the most useful plants for grouping during the festivities of Christmas. With tall Crotons, Palms and Poinsettia, and a carpet of Maidenhair Fern, a light and most effective arrangement was made. It also makes a first-class plant for decoration in the conservatory.—T. W.

PRESENTATION TO MR. F. JORDAN.—The Duke and Duchess of Portland have presented Mr. Jordan, gardener, Impney Hall, Droitwich, with a valuable silver teapot bearing the following inscription:—"Presented to Mr. F. Jordan by the Duke and Duchess of Portland, on leaving Welbeck—September 18th, 1896." The above is a much-prized and valuable addition to the numerous presents Mr. Jordan received on leaving Welbeck to take charge of the gardens at Impney.

ISLE OF WIGHT HORTICULTURAL ASSOCIATION.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held on Saturday last at Warburton's Hotel, Newport, when Dr. Groves presided over a large attendance. A paper was read by Mr. F. Lee, on "Winter Vegetables," on behalf of Mr. W. Tribbick, F.R.H.S., gardener to Sir Chas. Seely, Bart., Brooke House, I.W., who through ill health was unable to be present. The requisite details were touched upon in an interesting and practical manner. Votes of thanks were accorded the essayist and reader of the paper.

STORM EFFECTS IN THE ISLE OF WIGHT.—The storm which set in on Tuesday, March 2nd, and continued throughout the night and Wednesday morning did much damage in the Island. The weather the week before was so settled and mild I was going to pen a few lines on the earliness of the season, but this was upset by the appearance of March, which came in like a lion. In addition to the destruction of greenhouses, slates and tiles were scattered in all directions, and many people miraculously escaped being injured. But what we greatly deplore is the loss of large Elms and other trees in various parts of the island, which will greatly mar the picturesqueness and beauty of the undulated Garden Isle, and which it is impossible to replace. The exact number of trees blown down by the gale is not known, but according to reports there will not be far short of a thousand.—S. H.

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THERE was a fair attendance of members at the annual general meeting of this excellent Society, which was held at the Caledonian Hotel, Adelphi, on Monday evening last. Mr. Alexander Dean occupied the chair. The report of the Committee was as follows:—

"The Committee have great pleasure in presenting to the members the annual report and balance sheet for the year ending January 11th, 1897. The Society continues to prosper, the net increase of members being sixty-six. One benefit member and one lapsed member died in the early part of the year, the amount standing to their credit being paid to the widow in each case. Mr. James George (late Trustee), having reached the age of seventy, withdrew the amount standing to his credit (£82 10s.). The amount of subscriptions paid by members to the Benefit Fund, including arrears of 1895, was £1010 1s. 10d.

"The sick list has again been a heavy one, the sum of £196 15s. having been paid to fifty-one members. The deductions from members' deposit account to meet this amount is 7s. 7d., and 5s. in the two scales of contributions respectively. Subscriptions to the Benevolent Fund from benefit and honorary members amount to £134 10s. 6d. Small sums, amounting to £12 3s. 6d., have been granted to four members from this Fund. The Convalescent Fund is steadily increasing, the amount received being £18 12s., including £3 3s. from W. J. Nutting, Esq., and £5 from N. N. Sherwood, Esq., at the annual dinner. Three members were benefited from this Fund to the extent of £3 10s. The Management Fund shows a balance of £44 14s. 7d. The Treasurer has again invested £1100 during the year in Corporation (3 per cent.) Stock, and has a fair balance in hand.

"The annual dinner was held at the Holborn Restaurant under the presidency of W. J. Nutting, Esq., who fulfilled his office in an admirable manner, and kindly paid for the music. The accounts have again been carefully audited by Messrs. W. Gunner and Geo. Dixon, and found correct. The Committee specially invite all young gardeners and seedsmen to join this excellent Society, feeling sure they cannot do better than join the good ship 'United.'

"The financial aspect of the Society is good, and speaks well for the excellent manner in which its business is conducted. This is one of the best societies that young gardeners can join, as it confers benefits decidedly superior to any of those given by societies outside the craft." We heartily endorse the last sentence in the report of the Committee.

The customary votes of thanks were accorded to the Chairman and the several officers of the Society.

LOCKINGE PARK, THE SEAT OF LORD WANTAGE.

LOCKINGE, the Berkshire home of Lord and Lady Wantage, is a name to conjure with in the world of horticulture, for it is customarily taken as synonymous with quality and enterprise—indeed, one does not expect to see or hear of anything weak in connection with the place. Tree planting is the hobby of Lord Wantage, and gardening generally of Lady Wantage. The soldier Lord follows his bent in no half-hearted manner, purchasing trees of all kinds by the 100,000 for placing on different portions of the estate. Each site is selected with care and judgment, with the result that in the majority of cases success crowns the efforts made. Ready and willing to carry out all expressed

man it must be earned, for there can be no question of purchase. A soldier no longer, Lord Wantage still retains his interest in all matters pertaining to the military, though now horticulture and aboriculture come in for a considerable share of attention. The result of this enthusiasm is seen on every hand, and the large estate is rapidly becoming more and more beautiful, and let us hope increasing in value at a similar ratio. Delightful walks and drives abound in all directions, and magnificent views of real English landscape are spread before the wanderer as he passes on his way. In brief, it is one of Mrs. Heman's "stately homes of England."

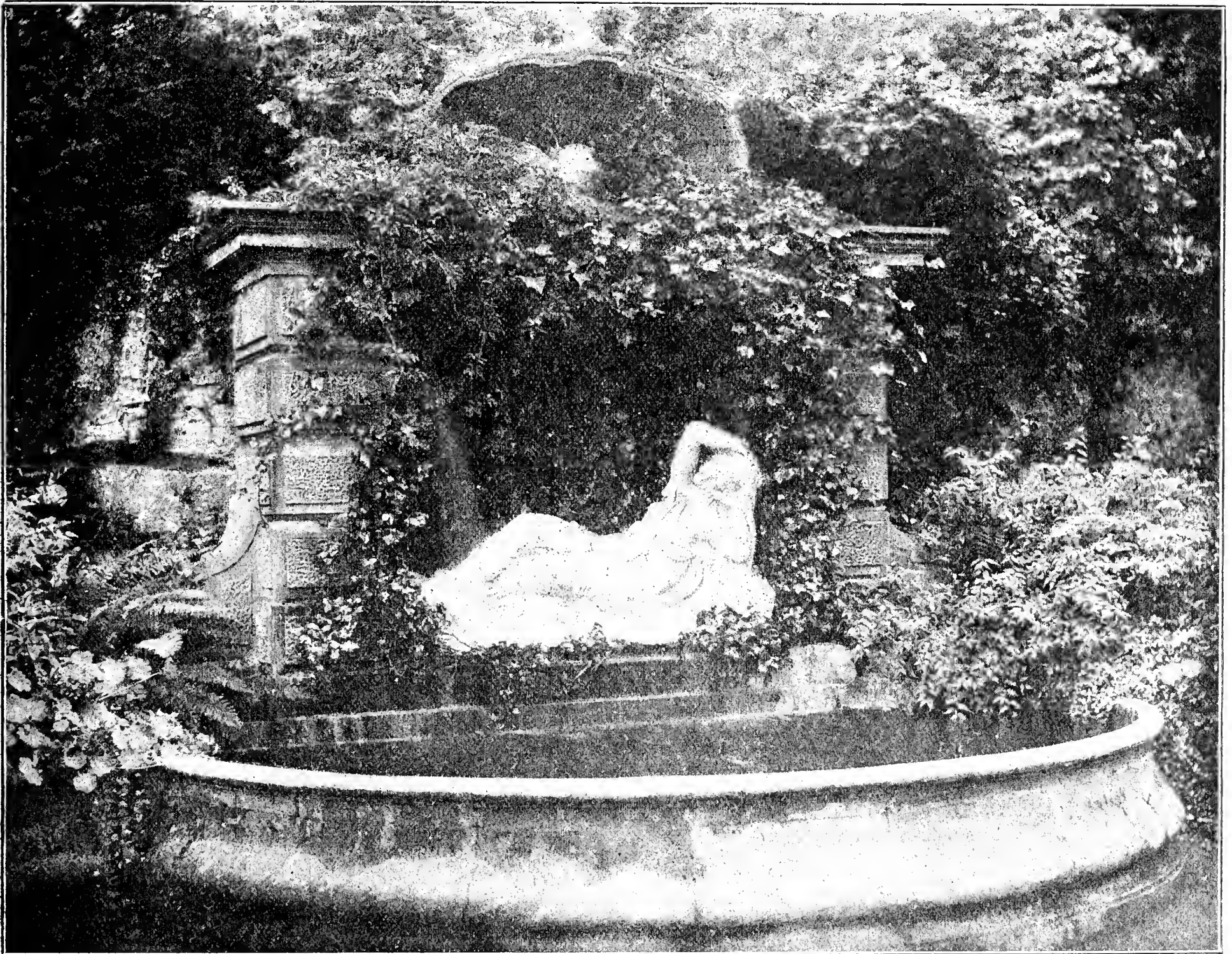


FIG. 42 —ALCOVE AND FOUNTAIN.

wishes of this nature is Mr. W. Fyfe, the esteemed head gardener, much of whose time during the winter season is taken up by going from place to place to superintend the planting.

Energetic as is his Lordship as a tree planter he was equally as much so in his younger days as a soldier, for he gained an enviable renown on the heights of Alma when he held a lieutenant's commission. It was there, where hundreds of brave men found their last resting place, that the greatest honour that can be attached to a man was given to Lieutenant Lloyd Lindsay—the Victoria Cross with its simple inscription "For Valour." Proud indeed may he be who wears this decoration, for it is given for merit alone. Whether it be awarded to officer or

The first week in March would not be considered by many of our readers to be an ideal time to see a garden, because it cannot be expected to find the trees laden with the fruit, the plants rich in bloom, and the whole sweet with Flora's and Pomona's fragrance. But none the less, a garden to a gardener is always interesting and mostly instructive, especially when the visit is the first that has been paid to some particular place. Such being the case, the pilgrimage to Lockinge was made with much pleasure and tended to the writer's profit, and though it cannot be written of as at the zenith of its beauty, there are many things that may be noted here. For the garden at its best we had perforce to rely on that excellent delineator the camera, and its pictures, reproduced in figs. 42, 43, and 46, on pages 201, 208, and 209, speak volumes about Lockinge, and render the task of describing it far easier

than it otherwise would be. No formal history will be given, but simply a few jottings of features of more than ordinary merit in some one or more respects.

From Wantage Road Station the visitor has a drive of upwards of two miles ere the old-time village of Lockinge, with its ancient structures, charming gardens, and splendid trees is passed. To reach this a road is traversed which for almost its entire length has been made, and is maintained by the owner of the estate. This goes up hill and down dale, now between green meadows dotted with live stock, there through banks, on which shrubs and trees have been planted. The yellow Broom will be gloriously beautiful when in flower. The Honcysuckles will disperse their fragrance, while the Buckthorn will do its part towards the constant change throughout the summer months. Every effort has been made to insure simplicity both in the choice of plants and also in the system of planting here, and the result must be decidedly gratifying. Many of the houses in this village have been rebuilt, as also has the schoolhouse, but no modern style of architecture has been chosen, and rightly, for this would be quite out of keeping with the older houses that remain as emblems of the past.

The secluded hamlet has not long been left when we come within sight of the mansion, showing conspicuously between the trees; but no pause is made until Mr. Fyfe's house is reached. It is a typical old English farm house, in which until quite recently, one family has resided for about 400 years. Without, one notes the appearance of strength, of solidity, with perhaps little of beauty. Within, the rooms are peculiar in shape; they have great oaken beams in the ceilings, and a natural air of comfort. The house is English, the home is English, while the welcome was English too. It is a greeting that tells you you are at home without any of that boisterous flattery that has sometimes the contrary effect to that which is intended. With Mr. and Mrs. Fyfe the visitor was at home at once, and their hospitality was acceptable after the long and tedious journey that had been made.

But there can be little rest when a garden is to be seen, and in a very short time a move is made towards the garden with its flowers, fruit trees, vegetables, and houses. Look at the illustration (fig. 42) which depicts a charming corner in one of the secluded flower gardens. The photograph was taken in the summer, and shows the recumbent nymph with the water flowing over her from above into the semi-circular basin in the foreground. The handsome stone framework is enveloped in verdure, not trained, but allowed to grow as naturally as may be; the sides being flanked with handsome Ferns. The rising background is clothed with plant life, while in the front is a small almost circular garden laid out for plants of various kinds. It is a spot where one might linger long in the cool of a summer day to enjoy the peace and beauty, the fragrance and variety of an English home. The eye can roam amidst things that charm the sight, while the ear is greeted with "the song of birds and the murmur of trembling leaves."

By hard and smooth gravel walks, past trees of stately grandeur, over lawns of velvety softness we wander, securing by the way a fine glance at the mansion. An immense structure is this, built apparently for strength and not for ornament. It lays in what the poet Gray would term "a cool, sequestered vale," and is surrounded by lawns, gardens, slopes, and hills, these latter being magnificently timbered. At various points within the range of sight, where trees were not so numerous, are seen plantations formed by his lordship, and which already have influence for good in the pastoral picture. These trees will be fitting memorials of their planter's career, for long after he has passed away they will bend with the wind, and the future dwellers at Lockinge will say "those were planted by Robert, Lord Wantage, and still remain as living testimonials of the one who from the turmoil of battle turned to the peace of a rural life, and found it in this ideal English home."

It is a scene of beauty that is depicted in the photograph on page 208. To the left may be seen the church, to the right the mansion, with a corner of the conservatory, while in the front is a series of beds that are gay with flowers in the summer. There is God's acre, too, by God's house, and all near here is as if hallowed by the presence of these—it is the serenity of perfect peace. To the left of the photograph, and also occasionally amongst the beds, may be seen large vases filled with plants, and whose sides are festooned with leaves and flowers. Look at these, at the Ampelopsis on the wall, at the trees in the back, at the creeper on the church, and at the beds in the front, and read in them the knowledge that it is summer. Things are different now, yet not without their charm.

Though the mantle of winter is over the flower garden within the conservatory is found the brightness of summer. Flowers are there in plenty, even a few dazzling Poinsettias still remain to add variety. Scarcely less bright in colour are the small flowers of Euphorbia jacquiniæflora, whose stems are wreathed with blooms. There are besides these Tulips, Hyacinths, Spiræas, the simple yet deliciously perfumed Mignonette, while in a central basin are seen Arum Lilies at home. The milk-white spathes and noble leafage rise from the water with telling effect. Depending from the lofty roof are creepers, with hanging baskets containing Ferns. Large Palms command attention, as does the structure itself, which is entered by a broad corridor. Unlike many conservatories of similar dimensions, the plants seem to thrive in a very satisfactory manner.

Look now at another scene in which flower beds, trees, lawns, and the creeper-clad house are all comprised. This is on page 209. How different is it from the view to which allusion has just been made! It serves well to illustrate the diversity of scenic effect that is here found better than could the word painting of a Carlyle or a George Meredith, though not so well as the canvas painting of a master hand, such as a Turner or a Linnell. As may be seen at a glance this garden is on a much higher level than is the mansion, and is similar to the other in being quiet and secluded. Simple styles of bedding are in vogue at Lockinge, and it cannot be doubted for a moment but that they produce a splendid effect. The flowering and foliage shrubs here, as elsewhere in the gardens, are very numerous, and represent large numbers of species and varieties. Cut flowers being a desideratum those are largely grown that provide these in the most liberal quantities. The selection having been skilfully done flowers of one kind or another are to be had over a considerable portion of the year.

Away now we go to see the houses, entering first the one in which that prince among Melons, Hero of Lockinge, found its origin. No need to dwell upon its merits here, for it is a favourite in every place all over the country where Melons are grown. There are some young plants just coming on now which, given fine weather, will render a good account of themselves later on. Cucumbers are there also in splendid health that will have to do their share towards filling the supply. By the way, the Lockinge system of Cucumber culture is to maintain a continuous round of young stock, for immediately a plant has passed its state of greatest productiveness it is removed, and its place taken by another. Mr. Fyfe is a thorough believer in this plan. The first plants of the year are always cultivated wholly in pots, the succeeding ones of course being placed on beds in the ordinary way. No eelworm is found, and one might safely add none is wanted. There is a Tomato too that might well be termed Hero, but is known only as a Champion.

Cyclamens are quite a speciality at Lockinge, where they are magnificently grown. In 48-pots there are now dozens, or rather scores of plants still carrying hundreds of flowers. Not that they are now at their best. They commenced to flower in November last, and as they have been on the go ever since they could not be expected to be absolutely faultless. The seeds from which the plants were grown were sown in October, 1895, so that when blooming first commenced the corms were only thirteen months old. Several of the varieties are Sutton's best. Primulas, too, are grown up to the mark, and some little plants of Chelsea Red in small 60-pots are smothered with blooms. The colour of this variety is very rich, and the flowers are of fine form and substance. Other newer single varieties are there, with doubles in abundance. As these latter are valuable for cutting they have a large amount of attention devoted to them, which they amply repay by the freedom with which the delicately beautiful flowers are produced.

In addition to the plants mentioned in the preceding paragraphs there are all those others customarily grown for the supply of a first-class establishment. Of foliage plants large numbers have to be maintained, because they are in such constant demand for purposes of decoration in the mansion. Naturally enough, considering the handsome colours of their leaves, Crotons are largely utilised, as also are Dracænas, Ferns, Pandanus, Palms, and others. Some of the specimens of the first-named in small pots are remarkably handsome, and perfectly adapted to the purpose for which they are grown. The collection of Orchids, too, is worthy of more than the passing glance that can now be accorded to it, for it comprises some splendid plants of many good Cattleyas, Lælias, Cypripediums, Odontoglossums, Cœlogynes, Thunias, and others, all of which are in the pink of condition, with their clean healthy leaves and substantial, fully developed pseudo-bulbs.

Another adjournment must now be made, this time to see the fruit trees under glass. Peaches and Nectarines in the earliest houses are splendidly set with fruits, while other trees are sheets of flowers. Straight, and free from pests, is the wood of these, as well as of the Vines. In the earliest vinery the bunches are numerous, and the foliage is wonderfully healthy. All the best varieties of Grapes are represented in the various houses, and all so far look remarkably well. The borders in which the roots of the Vines are feeding are comparatively small, but there is no lack of nourishment, this being applied from the surface, with the result that just beneath the top it is a mass of fibrous feeders. Figs are great favourites at Lockinge, and are in the most luxuriant health. Not so gross, however, as to be detrimental to fruiting, but in such condition as to produce the fullest of crops.

The splendid walls that surround the vegetable garden are almost entirely covered with fruit trees, amongst which Pears and Plums are conspicuous, by reason of their excellent condition. They are beautifully trained, and the cleanliness of the wood, the strength and abundance of the buds, testify to the correctness of the treatment to which they are subjected. Other portions of the wall are occupied with different kinds of fruit, though one corner was noted that had been devoted to Roses. Fruit in the open is equal to that on the walls, and some small bush trees planted on the surface are in perfect condition. They were placed practically on the level, because there was no soil in which to plant them, and year by year they continue to give surprisingly satisfactory results. Now they are studded with fruit buds, and promise to produce crops equal in quality to previous years.

The vegetable quarters are not very fully occupied just now, though all is in readiness for sowing and planting with the various kinds that are so largely grown. In one of the houses are thousands of young Pea plants—American Wonder—from seeds sown in February, and which will produce the first pods of the season later on. As soon as large enough and during suitable weather these will be planted in the open ground. Of Asparagus and Seakale there is abundance, the former being forced by simply laying the old stools beneath stages in the vineries, where they are warm and kept pleasantly moist. The system involves little labour and gives excellent results. After forcing the old plants are thrown away. French Beans in pots are very fine, but to see the vegetable garden in perfection a journey would need to be made much later in the year.

A glance into the fruit room, where are seen Apples in great numbers and several bunches of Grapes, and we return to partake of Mrs. Fyfe's hospitality. A rest and the road for the railway station is started upon to the accompaniment of a deluge of rain and the howling of the wind in the trees. The morning was bright and sunny, the day quiet and enjoyable, the evening boisterous and uncomfortable, but after the reception received and the walk round the estate even this could be borne in contented silence.—H. J. WRIGHT.

WALKS AND TALKS IN KEW GARDENS.

A LITTLE while ago Mr. J. Gregory delivered a very interesting and instructive lecture on the above subject, illustrated with dissolving views, to the members of the St. Barnabas Gardeners' and Amateurs' Improvement Society at Sutton, Surrey. The lecturer first introduced his audience to some fine views of Kew Bridge, The Green, main entrance to the Royal Gardens, thence to the Palms and Aroids, Philodendrons and Monsterae, all being very well shown. Then followed a visit to the Museum, with photographs of the huge specimens of timber that are to be found there. Then he took us to the Orchid house, showing a magnificent group of Cypripediums. The Nymphaea house was next illustrated, and interesting information given regarding the propagation and the peculiarity of flowering of the giant Water Lily.

From the large Cactus house we were shown a specimen of one of Nature's giants in *Cereus giganteus*, which is about 6 or 7 feet of solid succulent tissue, and nearly a foot thick. This was followed by pictures of Euphorbia in flower drooping from the roof, Aloes, Opuntias, and others. On leaving this house we were shown some grand views of the Great Lake with the Palm house on the opposite side, which at all times of the year is more or less interesting.

We were shown some beautiful pictures of Palms, which included the Date (*Phoenix dactylifera*), Cabbage, and Cocoa-nut Palms; also Bambusas and Musas, with here and there a Vanilla plant climbing in tropical luxuriance.

From the Palm house we were given a view of the unassuming building which contains the splendid results of years of untiring energy of Miss Marianne North, whose paintings of plants, for the most part painted in their own native homes, are, to say the least, grand. There are some 800 oil paintings of plants from various parts of the world. Then followed a visit to the Science and Art Museum, and to the economic plant house, where photos of several varieties of the Citrus family were shown. The cultivation and early history of the Cinchona were next touched upon. This, in combination with sulphuric acid, is what quinine is made from, which to residents in hot and malarial countries is an absolute necessity.

Photographs of the Pagoda, avenues, rock garden, and other choice corners of the Gardens brought to a successful termination a most pleasant and interesting evening. Apart from the lecture were shown some exquisite photographs of individual plants which I believe Mr. Gregory is making a study of, the most noticeable being some trained standard Chrysanthemums, Narcissi, Orchids, and Spiræas.—W. H. WALKER.

LIVERPOOL NOTES.

PRESENTATION TO MR. R. PINNINGTON.

THE first meeting of the session of the Liverpool branch of the National Amateur Gardeners' Association was held in the Common Hall, Hackins Hey, Liverpool, on Thursday evening under the chairmanship of J. C. Glover, Esq., the newly elected President, there being an excellent attendance. The President, in his opening remarks, said he would not take up the time of the meeting further than to say that reports had been circulated to all members. In this report, while the Committee regret a falling off in members, they congratulate themselves that those who have retired were the "drones," the non-workers, and that those who remain are taking an active and intelligent interest in the work of the branch.

The financial state of the branch has greatly improved, thanks to the energy displayed by the new Secretary, J. C. Langley, Esq., and after setting aside 7 guineas for prizes the branch has a balance in hand of £12 9s. 11d. to commence the year's working—the largest balance they had ever had. He was glad to say that quality of exhibits was on the improving side, which was to his mind a matter of great importance, as was also their encouragement of junior members. He hoped they would go on and prosper, and help to support the Association in every way. Medals and certificates were then presented. Mr. A. Dodd,

Aintree, was awarded the silver medal, and Mr. Arthur Dale, Egremont, the bronze medal.

A very interesting feature of the meeting was the presentation by the President (on behalf of the members) of a handsome silver-mounted cigar case to Mr. R. Pinnington of Roby, Liverpool, representative of the *Journal of Horticulture*. In making the presentation the President referred to the kindness shown to the members by Mr. Pinnington in attendance at the meetings, to which he often came at much disadvantage to himself, always bringing something choice from the gardens under his charge; by his useful advice, which he so readily accorded; and for the valued reports from his pen; and he now asked Mr. Pinnington's acceptance of the gift, as a small mark not only of their appreciation but of their esteem and friendship. Mr. Pinnington replied in a brief but suitable manner.

An interesting display of plants, such as Cyclamens, Azalea mollis, *Cœlogyne cristata*, and Dracenas; the prizes awarded being to Mr. Cangle, Formby, for Tulips; and certificate and special prize to Mr. J. C. Langley, for grand blooms of *Calla æthiopica*—a fine exhibit.

To inaugurate his first year as President, Mr. Glover afterwards entertained a large number of members to a smoking concert at the Alexandra Hotel, Dale Street, where he dispensed hospitalities in his usual kind way, the programme being of a very high-class order. Mr. Ardman and Mr. Histed eulogised the services of Mr. Glover as President, and with Mr. J. C. Langley (Treasurer), and Messrs. J. M. Smyth and G. Gillanders as Joint Secretaries the Liverpool Branch ought to make rapid strides, and be to the fore in all the good work it is trying to accomplish. A capital syllabus for the ensuing session has been fixed, and the work that it is proposed to carry out cannot but be conducive to good. The names of several new members were proposed.

AXES TO GRIND.

I WAS a very interested listener to the admirable paper Mr. G. Gordon read on the evening of the 3rd inst., before the members of the Society of Arts, at their house in the Adelphi. Even the presence of the Director of Kew, Mr. Thistleton Dyer, as chairman, was insufficient to attract a large attendance, and one could hardly help realising the incongruity of dealing with such a subject, though undertaken by the special desire of the Society, in such a locality as the Adelphi.

Had the paper been read before the Chamber of Agriculture, or the Royal Horticultural Society, or the Fruiterers' Company one could have understood the nature of the connection of the subject with these bodies. Really, as dealt with by Mr. Gordon, it seemed to have most relation to agriculture, especially that the orchards chiefly referred to, and which generally have got into such a deplorable condition, are chiefly farm orchards.

It may as well be admitted at once that whatsoever may be done in relation to cider production, a matter somewhat outside horticulture, by farmers, it is utterly useless to look to them as a body to improve fruit culture, or to give to the nation those immense supplies of fruit which are so much needed, if it is hoped or purposed to displace by home-grown produce the enormous imports of hardy fruit from other countries.

Mr. Gordon had his axe to grind, but it was like my own, a most unselfish one. He wishes to see hardy fruit culture all over the kingdom made into a living reality, because he is a gardener and has a gardener's ideas as to present defects and how they should be remedied. I grind that axe too, and so also, I think, does everyone who wishes to see our Old England converted into a great fruit-producing kingdom.

But there was at the meeting yet another axe to be ground, for that imperturbable advocate of cider (for is he not a member of Parliament for a cider-making division of Hereford?), Mr. Radcliffe Cooke, made a long speech in favour of cider—improvement and production. That seemed to me to be the drawing of a fishy trail across the object Mr. Gordon had in view. Cider may have its interest for those who like it, but it has little for those who want to see vast quantities of fine Apples and Pears grown for cooking and eating.

The next axe was found in the hands of a gentleman interested in artificial storage, who thought that through such agency much might be done to extend the season of our fruit supply. There may be something in it; but if cold storage means, as evidently it does, that the fruits must be kept in a very low temperature for a long time—then we should like to know more as to their condition of flesh and flavour before agreeing. One of these grinders said Apples had in this way been kept four years. It would have been interesting to ascertain what edible value they had after so long keeping.

Then there was yet the Evaporator with his axe, and he thinks much might be done to extend our Apple supplies by evaporating the fruit. It really seemed as if the announcement in the Press of this particular paper of Mr. Gordon's had brought together a fine collection of axes, with the unfortunate result that the discussion on a matter of the very first importance to the welfare of the nation drifted off into side issues, and the great purpose of the paper was overlooked. That was perhaps an almost inevitable result of the reading a paper to an audience so few of which had any knowledge of the subject.

It is hard to induce persons who have axes to grind, that in this case grindstones are not required. We need a real reaction from existing slovenly and ignorant practices to high-class fruit culture. We want fine fruit as food not to be destroyed in any process. That is true pomology. It looks even now as if some fifty years would have to elapse ere the people of England rise to the situation.—A. D.

A RESTING TOUR.

(Concluded.)

LAST on the roll of resting places of the wandering pilgrims during their autumn tour in the North, but now facing the engine for the great Mecca of the South; last but not least worthy of a few "scrappy" notes—mere memory dregs of a few "happy" hours—is Drumlanrig. Than this there are few more familiar names in the gardening world, made so by famous men, not the least of these being he who soon retires from the scene of his long and brilliantly successful labours, Mr. David Thomson. A head gardener for half a century; if any man has won repose it is he whom his "old pupils," most of them no longer young, commendably desire to honour.

It has been said by a great traveller in missionary enterprise, who was a revered guest in many hundreds of homes during his long and remarkable career—"You never really know a man until you have lived with him." Such men as those whose names are mentioned on page 179 last week, and who rank amongst the best of British gardeners, have lived with Mr. Thomson, and proved him—proved his zeal and capacity in the discharge of his duty; his solicitude for the competency and welfare of those who have had the privilege of serving under him; his high sense of justice; his clear head, and his good heart. All this they have proved, and in the action they are taking they are unconsciously, but certainly, doing honour to—themselves.

"Fifty years head gardener!" What a term in a worker's life! Long for the young to look forward to; much shorter for the old to look back upon. Once remarked an octogenarian to the writer, "When I was a lad at school the time seemed to crawl—so long between the holidays; by-and-by it began to walk; after I was fifty it seemed to run; and now (at eighty) it gallops." Such, no doubt, is the experience of most who have lived through two and a half generations. Wise it is to use time worthily and well when young, and always. Mr. Thomson is not an octogenarian, though it is hoped he will be, also hale and happy then.

From the beginning of his career in gardening he was diligent as a student, worker, and experimenter, and always a close observer, he developed into one of the best practitioners in the kingdom and most effective writers on gardening. In character ever modest and retiring, in disposition quietly genial, also obliging without fussiness and demonstration. He has lived a prudent life, and used time well. An apology is now due and tendered to Mr. Thomson for writing that which, in itself, he would prefer had remained unsaid, but will respect the motive and object in saying it—namely, that the short and true record may tend to exert a wholesome influence on those gardeners of the future who are now in the (time) "walking" period of life.



FIG. 43.—MR. DAVID THOMSON.

Perhaps it may be worth saying, for the benefit of those constitutionally unsettled members of the gardening community who are always wanting "fresh and better places," but who have scarcely patience to wait for them, that though Mr. Thomson has been a head gardener for half a century he has only as such had (save a term of less than two years) three situations. It does not seem long since "Davy," the late foreman at Wrotham Park, Barnet, was appointed gardener at Dyrham Park in the same district. There the young man of twenty-four went to work in a thorough manner. Finding a cold, tenacious, unworkable, culturally useless clay, he obtained permission to burn it—not into ballast but friability. This was done to a depth of

2 feet. It was a great piece of work, but had great results—marvellous productiveness, and "Davy's Brussels Sprouts 6 feet high" were the talk of the country side. The press made the achievement widely known, and the young man won his spurs as a sound practical gardener.

It may have been there also (and if not there it was certainly somewhere), that Mr. Thomson revolutionised the method of propagating Zonal Pelargoniums. It was the result of his observant faculty and taking a lesson from Nature. The old established method of rooting cuttings of these plants was in accordance with the stereotyped formula of "keeping them close, moist, and shaded," the same as Fuchsias and other thin-stemmed soft-wooded plants. Thus the "Geraniums" gave endless trouble by damping. Sometimes half the cuttings would "go off," sometimes more, as the writer can remember. Mr. Thomson, observing some trimmings of the plants thrown on a heap of vegetable soil in the full sun first wither, then revive, examined them more closely, then found that the stems in

contact with the soil had emitted roots. Reflection led him to think that such fleshy stems could afford to lose some of their moisture, and he put the matter to the test of practice. Not only was the surmise correct, but all the cuttings rooted, with the great advantage of firmer plants for passing the winter without loss, and becoming sturdier and more floriferous than those raised in the orthodox way. How simple and natural the whole process seems now, and has been so regarded for many years! But comparatively few are aware that Mr. Thomson was the Columbus of the whole matter, and it is well that the fact be recorded.

From Dyrham Park to Archerfield was the first move of the progressive gardener, and there he added to his fame as a flower gardener, Grape grower, and general practitioner. The flower garden which he formed and furnished near Dirleton Castle (a ruin on the Archerfield estate), was in its way, and for many years, one of the finest examples of the massing system in the kingdom. From Archerfield Mr. Thomson went to Drumlanrig, and there he has remained trusted and respected by his ducal employers and

employés for twenty-eight years, and he expects to move to a "shantie" he has secured with a "good big garden" on a walled-in "estate" on 28th of May. He has had a "good big garden" to look after all those years on an estate of 250,000 acres, so will scarcely be overwhelmed by his new undertaking.

It was presumably at Drumlanrig that Mr. Thomson made another discovery from which manufacturers of insecticides have profited, and many gardeners benefited—the value of petroleum as an annihilator of insects on plants and trees, and which now forms the base of many preparations. The discovery was the result of several experiments resorted to to meet a particular case, and when the efficacy and measure of safety of the powerful agent was proved by various tests, the particulars were given to the world through the Press. The use of petroleum has become so general in gardens, that the originator of it as an insecticide is perhaps hardly thought about, and certainly by many not known, and that is why the facts of the matter are registered here.

The gardener's home at Drumlanrig is a delightful place to rest in; situated high up the side of a bold tree-clad hill, and reached by "screwing" paths, the view across the kitchen gardens and for miles beyond, with a crescent-like range of mountains in the far distance is grand. The weather was not of the best in mid-September, but we managed to pass through the gardens and pleasure grounds between the showers, also have a glance through the stately Castle standing in solitary grandeur in such a position of bold natural beauty as it is rare to find. From the terrace we have seen the extensive flower garden a blaze of beauty; but as in many other establishments flower beds have to a large extent given place to a greater expanse of lawn, and it cannot be said in this instance with loss of dignity, as grand trees on smooth greensward have a distinctly imposing appearance.

A flower garden on a level with the Castle on one side was as gay as a garden could be. On the other side the large beds were occupied in a very different manner, and equally ornamentally in their way. This is called the "shrub garden." At intervals are pyramidal specimens of Golden Cypress, Retinosporas, Green and Golden Yews, and Thujaopsis. Many Golden Hollies are also employed, and the ground between covered with such plants as Cotoneasters, variegated Periwinkles, and hardy Heaths. The pleasing association of the different kinds, so diverse in habit and colour, form a distinct and effective feature, and the beds are permanently attractive. The pleasure grounds comprise some 50 acres, and look which way we may from the Castle terraces, east, west or south, we cannot fail to perceive that the site was wisely chosen for a home some 200 years ago.

Returning to the kitchen gardens, a mile from the Castle, a few of the main features may be briefly noted. Six acres are enclosed with walls, and there is a large outside area, that next the gardener's house being mainly lawn and hardy flowers, with long wired arcades of Roses and other climbing plants, the northern boundary being the 500 feet long span-roofed house, 18 feet wide, open from end to end, and heated by 3000 feet of piping. The trellises are clothed with healthy and productive fruit trees—Peaches, Nectarines, Plums, and Pears, which must yield an enormous amount of fruit. In September the Pears, trained like Vines, were a "sight," as roped from base to summit with their load of excellent fruit. Half the range on both sides the central path was filled with Chrysanthemums—dwarf plants from 2 to 3 feet high, most of them having ten to twenty bold buds that would produce handsome blooms. They were a credit to all concerned, and would in due course make a grand display. In the wet cold district the plants have to be housed early in September.

The Grapes in the fine range of vineries on the south side of the garden were worth a long journey to see. Crops and bunches magnificent. Black Grapes, such as Hamburgs and Gros Colmans, have been splendid for years, but the soil has been too wet and cold for Muscats, some 4 or 5 feet of rain falling on the outside borders yearly, and it evidently suits the others. Mr. Thomson has found out a way to make it suit Muscats, which were remarkably fine. An interesting and excellent way it is. It has often been said that good Muscats and Black Hamburgs cannot be grown in the same house. They are not only finely grown side by side at Drumlanrig—one rod of Muscats between two of Hamburgs throughout one large house (except where Gros Colmans take the place of Hamburgs), but both are fed by the same roots. Thousands of persons would rejoice to have such noble bunches of the black varieties and the Muscats, even in separate houses, as are here grown in twinship, or tripletship if you like to have it so.

The Muscats alternate with Black Hamburgs, or Gros Colmans as the case may be, are grown in this way. From each Vine planted of the black varieties two fruiting rods are taken, with a third added by grafting of the Muscat of Alexandria. In this way only has Mr. Thomson been able to grow fine Muscats at Drumlanrig. He tried all sorts of stocks, but unless where limbs of the stock were retained the Muscats did little or no good. Nor did they on their own roots, but now he has them to his satisfaction, or at least he ought to be satisfied with them. His theory is, and no doubt the correct one, that the roots are kept working in the cold soil under such a rainfall longer and more actively, and the Muscats share the benefit, the robust helping the delicate variety to do its work. It was worth going to Drumlanrig to see the combination, the problem solved, the fruit of a happy thought, born of scientific reasoning, and another feather in the cap of this grand old gardener of modern times, who has changed little since the portrait was taken as shown in fig. 43.

The second large house is devoted to Black Hamburgs, the bunches and berries from top to bottom of the Vines and from end to end of the house forming such a crop as this poor scribe has not seen during his journeyings of a few thousands of miles. In the

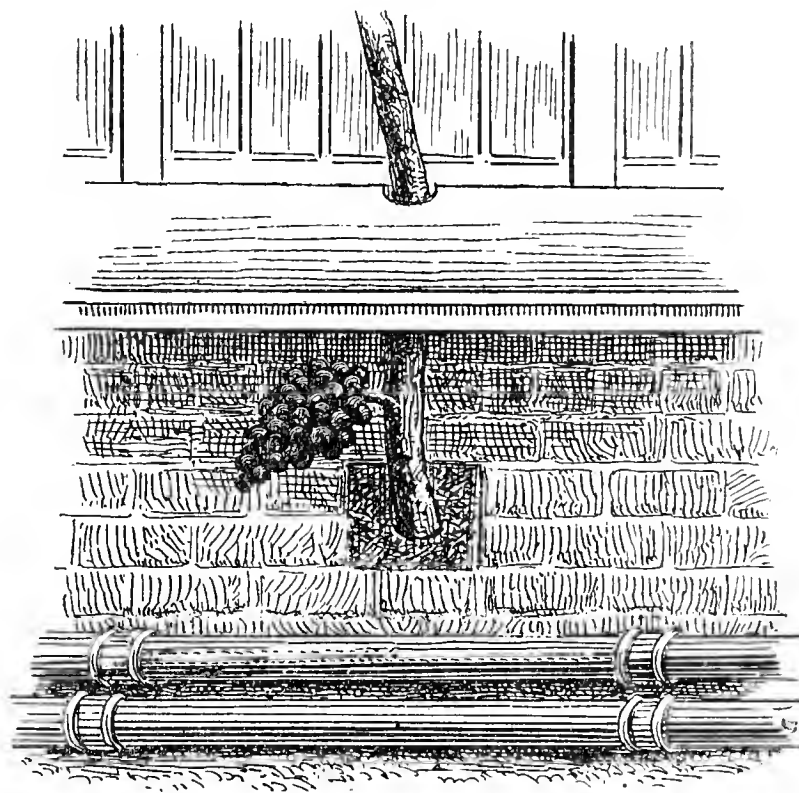


FIG. 44.—A NOVELTY IN GRAPE PRODUCTION. (See page 206.)

third house we find a mixture—Muscats nursed by Raisin de Calabria and by Gros Colman as fine as anyone could wish to see, especially the union of the Muscat and the Colman. Then we were drawn to a monster crop on one Vine—a young rod of Gros Guillaume, often miscalled Barbarossa, established on Gros Colman, probably 5 lbs. per lineal foot. Perhaps, however, the scales may have settled the point by this time, and if so it will be interesting to learn the result. The fourth house in the range was devoted to the combination of Gros Colman and Muscats, probably such a house of Grapes produced in the same way as could not be seen elsewhere. There is only one right word for it—magnificent. The crop of Duke of Buccleuch in another range was cut and gone, but the noble Duke is, as it ought to be, "at home" at Drumlanrig, giving a fine yield of its beautiful and delicious fruit.

The Vines, with perhaps a few exceptions, including "The Duke," were planted by the grower of them over twenty-five years ago. The outside borders are firm and "matted" with roots near the surface. That, with proper nutriment, including moisture, also the best of routine attention, is the secret of their vigour and productiveness. Mr. Thomson did not say so, but there can be no doubt they have had a generous share of the manure with which the family name is identified, but that alone would not suffice. The surface must be kept moist during dry weather in the summer to keep the roots there for appropriating the food supplied. This is effected by mulching, not through the spring months for excluding warmth from the sun, but in summer for preventing evaporation. The reverse of this is very much too common, and then the borders cannot be permeated with myriads of fibres bristling almost through the surface, nor can the Vines be in the splendid condition of those at Drumlanrig.

Before leaving the Grapes a curiosity ought to be noted—perhaps one of the rarest occurrences connected with the Vine. I have seen an Orange grow within an Orange, a small Grape within a berry of a large one, an Apple with a leaf attached produced from the thick stem of a tree, but only at Drumlanrig have I seen a bunch of Grapes issue directly from the old stem of a Vine without any leaf whatsoever. We had to stoop and look under the front slatted stage to examine the phenomenon, but the readers of the *Journal of Horticulture* can see in fig. 44 exactly what it was like without stooping. This ought to suit Mr. Iggulden, who appears to like things “plain and easy.” A latent bud was there, and it is not uncommon for such buds to form on old wood and grow into stems or leaves. The tendril of a Vine is a changed or modified leaf; a bunch of Grapes is, shall we say, an ennobled tendril. But here the order of progression was changed, the bunch coming first and alone. Here is a chance for Mr. Abbey to explain the “reason why,” and the whole metamorphosis. If that word is too much for Mr. Iggulden, I have something simpler explanatory of the strange freak of Nature, and it shall be given to him as it was given to me. Speaking to a gardener on the subject—a plain, good, working gardener—and asking his opinion thereon, he at once replied, “Why the whole thing’s clear enough. Mr. Thomson would only allow so many bunches on the Vine, and nipped all t’others off, but it was so full of fruit inside that it thought it would send out a bunch where he couldn’t see it.” Can Mr. Iggulden improve on that for plainness? Even Mr. Abbey has not gone so far as to suggest that Vines can “think.”

As these sheets are taken as they are written and as fast as they can be got hold of to the printer’s, a little torment has commenced sounding the alarm—“only room for a little more, 5 or 6 inches,” and I wanted to say something about the plants and kitchen garden. Of the plants, then, it is the same now at Drumlanrig as at most other places—only such are grown that are of service for decoration in the Castle and for cutting, but how healthy they are and how clean in their always clean outside-glazed pots! All kinds of plants thrive in these non-porous pots quite as well as in the porous, and much labour is saved in washing by using the former. Mr. Cuthbert Johnson, a scientific cultivator, has used them long and extensively. The late Mr. Woodhead always used them for his Auriculas, and healthier plants were never seen. In these pots less water is needed than in the porous, and consequently less of plant food is washed out of the soil, while when water passes down freely the air follows in quite sufficient amount, and no one can prevent it. The time-honoured assumption that pots must be porous to admit air to the roots of plants is based on a fallacy. When soil is sodden air cannot enter it whether pots are porous or not. When it becomes too dry air enters too freely, but the tormentor is here again asking if I will be so good as to “crush it.”

The same attention is given to the kitchen garden as to any other department at Drumlanrig, and all are equally clean and orderly. The demand for produce during the shooting season is great when the Castle is occupied by about 200 persons. The supply is on a correspondingly large scale, and what would perhaps most arrest the attention of visitors in September was a huge breadth of Ne Plus Ultra Peas, the rows, I know not how many, certainly 9 feet and probably 10 feet high, laden with pods; but a couple of rows of Potatoes would also arrest attention—huge ridges 4 feet apart, and such growth, as if for the purpose of trying what Potatoes could be made to do. They did very well as to bulk, some individual sets giving a yield of 17 lbs., several tubers exceeding 2½ lbs. in weight, but none equalling the tuber weighing 3¼ lbs. in an Archerfield experiment.

Mr. Thomson will leave the scene of his long labours reluctantly. He speaks most highly of the kindness and respectful treatment he has received from the two Dukes and all the members of the family he has served during his long term of responsibility, and dwells with pleasure on his connection with “old pupils” who occupy good positions in this and other countries, and is satisfied that the great garden which he loves, and which will long bear the impress of his skill, will be in the keeping of a most competent successor in Mr. Inglis.

“Pages made up; only space for twenty lines more.” That is the fiat. These must be lines of grateful acknowledgment of the genuine welcome extended to us by Mr. and Miss Thomson during our short and no doubt our last rest in the picturesque home on the terraced brae. All that could be wished for was there, with something to take away to remind us of the all too short but pleasant call—a bunch of Heather. For months it has sparkled in a London den, all through the dreary days that have since passed by, “looking as red and fresh,” to quote the words of a brother of the

pen, Dr. Gordon Stables, in the “Echo,” “as when culled from the braes around Balmoral Castle.

And we love it for lulling us back into dreams
Of the blue Highland mountains and echoing streams,
And of Birchen glades breathing their balm;
While the deer is seen glancing in sunshine remote,
And the deep mellow lush of the wild pigeon’s note
Makes music that sweetens the calm.

That answers equally for Drumlanrig, says the Missus and—
THE SCRIBE.

BRUSSELS SPROUTS.

As a winter vegetable the Brussels Sprout stands without a rival, from the fact that its season of use extends over so long a period, and what is more, few consumers seem to tire of it in the same manner as they do of Broccoli, Parsnips, Seakale, or Cabbage from the frequent and continued repetition. Most, if not all gardeners, have their own particular rule in the matter of routine—sowing, transplanting, site, and distance allowed between the plants and rows, and a good quarter of Brussels on the advent of winter is usually one of the items over which the kitchen gardener prides himself, more or less according to its quality and extent.

There would seem a universal custom among private gardeners to sow their seeds of this crop under glass during the earlier months of the year, and to those who make it an annual custom—and it may have been one extending over many years—it would be utterly futile for anyone to attempt to bring about a change in their methods of procedure. A course which has resulted in a successional and completely satisfactory crop may well be followed without change, and this applies to the man who depends on sheltered open-air borders for the first sowing, equally with the one who depends absolutely on indoor raised plants, sown in boxes or pans. Good crops are produced annually from seeds sown indoors under varying conditions, and the same may be claimed by those who sow their seeds outside the shelter of glass houses or pits.

Only once during the twelve years of which I have had a responsible charge have I sown Brussels Sprouts indoors, and then only a small portion of the crop was so treated, and I did not find the superiority of the one such as to lead me to adopt it as an alternative since, although I must say the numbers required have not been so large as needed in some establishments. At present my annual stock numbers only 2000, but if I had to accommodate half these in boxes it would entail more space and labour than I can well afford to devote to them.

My plan is to sow a portion of the seeds on a narrow border against a sunny wall, where they are naturally sheltered, and where protection can be given easily against birds, and by thinly scattering the seeds on the bed of fine and fairly rich soil I get sturdy plants to put out permanently on ground already in waiting without any necessity of pricking out into boxes or nursery beds. Here they grow freely, and are no further trouble unless slugs set up a claim for a portion, when others must be found to take their places. It is not desirable or attempted to sow and plant the whole at one time, but rather the early one is supplemented by a larger sowing made quite in the open among the early Broccoli, Cabbage, Cauliflowers, and such like. For getting a supply of good Sprouts in February and March it is quite necessary to make a correspondingly late sowing, and there is no doubt as to the value of a late supply. It is an easier matter to secure an early matured batch than to keep up a daily gathering of hard Sprouts during March.

In gardens where there is not much or any accommodation for forcing Beans or Asparagus, and when Broccoli is in evidence only by name, late Sprouts are valuable, for at that season there is but a small choice. Seakale, acceptable as it is in early winter, is not so highly valued generally after it has had a course extending over four or five months.

Varieties ranging in height from 18 inches to 4 feet are available, some bearing large, others small sprouts, and there being so many good selections in the market, and offered by all the leading seedsmen, there is abundant choice to suit all and every requirement. As a general rule the larger the sprout the greater the pleasure given to the grower, and sometimes at the table; but some claim a greater degree of excellence in the small hard sprout than is found in large ones. Much, however, depends on the cook in the matter of flavour when presented at the table—indeed, this applies to most vegetables—and very often complaint is lodged against the quality of Sprouts, whether they are large or small, without any ground whatever.

In good soil 3 feet between the rows of plants is none too much—that is, the larger growing ones, comprising the various exhibition strains; and 2 feet between the plants. At these distances my plants completely furnish the ground, and they invariably set

up their sprouts better when plenty of room is allowed for air and sun to act upon them. Strong plants at 2 feet apart each way become a dense mass of foliage, which absolutely shuts out the sun's rays; but in poorer ground these distances would suffice. Last year the plants languished for want of root moisture, and did not attain to more, and in many cases less than half their usual size; but the stems, though short, became thickly set with good sprouts, even below the soil. There was no rain to do them any appreciable good from the time of planting until September, and it was surprising how well they withstood the ordeal, and the excellence of the crop they bore after that date. If there were benefits derived from indoor sowing, it was more conspicuous last summer than is usually the case, but notwithstanding the gain thus secured, I shall not be tempted to depart from my custom of sowing outdoors in March.—W. S.

CHEMISTRY IN THE GARDEN.

(Continued from page 187.)

THE material of which the sedimentary rocks are formed, was derived first of all from the primary rocks. The first named rocks were formed under water, but as time went on some of them were upheaved by volcanic action, and so became dry land; they in their turn supplying material for the formation of other sedimentary rocks. As some are formed from the primary, and others from the primary and sedimentary, we should in time have many different kinds of rocks upon the earth. To give our readers some idea of the vast changes the rocks have undergone, it is only necessary to say, that if all the different kinds of rocks, which have been formed at various periods since the formation of the earth, were placed on the top of each other, they would reach a height of thirty miles.

As there are so many different kinds of rocks upon the surface of the earth, and as the soil is formed by the decay of these, it naturally follows that soils will vary quite as much as the rocks, and to a large extent the former will have the same characteristic properties as the latter.

THE FORMATION OF SOILS.

The various agents which are at work, breaking and wearing down the rocks into soil, are as follows:—Water, carbonic acid, oxygen, changes of temperature, plant and animal life.

Water is the most active of all the disintegrating agents. It attacks rocks and causes their decay in two different ways—first, chemically; and secondly, physically. When considering the origin of soils, we saw that felspar and mica contained silicates of alumina, potash, soda, lime, magnesia, and iron. Water itself possesses the power to dissolve out some of these constituents when it comes in contact with the surface of the rocks. Rain water as it descends through the air absorbs oxygen and carbonic acid; and water containing these gases attacks the constituents of rocks more energetically than would pure water. The carbonic acid unites with the potash, soda, lime, or magnesia, and forms carbonates of potash, soda, lime, or magnesia, and these substances being soluble in water are dissolved and carried away.

The potash, soda, lime, and magnesia are present in the minerals felspar and mica in chemical combination with silica and alumina. When carbonic acid unites with either of the first-named substances, and water dissolves and carries them away, the silicates of alumina undergo a chemical change. As soon as the potash, soda, lime, or magnesia is taken away from the silicate of alumina water takes its place—i.e., unites with the silicate—and a substance called hydrated silicate of alumina, or pure clay, is formed. Pure clay (kaolin) is the substance which gives to horticultural clays their plastic sticky character. In gardens stiff tenacious clays are sometimes burnt. This is done for the purpose of driving off the water from the hydrated silicate of alumina; the silicate of alumina (burnt clay) left, being sand-like in character, makes the clayey soil to which it is applied more open and porous.

In the mineral angite the magnesia is present in combination with silica. If the magnesia is dissolved out of the mineral only silica (sand) would remain. Hornblende contains large quantities of protoxide of iron (Fe_2O_3), but the substance on being exposed to damp air is oxidised—i.e., unites with oxygen—and becomes the peroxide of iron, or iron rust (Fe_2O_3).

This altering of the chemical composition of the silicates of alumina, the silicate of magnesia, and the protoxide of iron, causes the surface of the rock to become soft or rotten; and the loose particles may either remain to form a film of soil, which will be increased in depth as time goes on, or they may be washed into the ocean to form sedimentary rocks.

Owing to the action of water, carbonic acid, and oxygen the surface of the rock becomes full of tiny holes. When rain falls these will fill with water, and if a frost follows the expansion which

takes place when water is converted into ice causes small pieces of rock to be broken off from the mass. There are very few rocks which do not possess fissures or cracks in them; if these during wet weather get filled with water and it freezes, huge pieces of rock may be separated from its parent. It is owing to this cause that so much rock debris is found lying at the bottom of cliffs.

The disintegrating agents will attack the broken pieces of rock, and gradually convert them into soil. The action of frost in pulverising pieces of rock is well illustrated when pieces of chalk or marl are put on land in the autumn. During rainfall the pieces of chalk or marl get saturated with water, and if a frost follows the expansion of the water as it is converted into ice (9 cubic inches of water become 10 cubic inches of ice) forces the particles of rock apart, and the lumps fall down into a powder as soon as they thaw.

In past ages the action of moving ice (glaciers) in grinding down the surface of rocks into soil was considerable, thousands of acres called *drift* being formed in England by this cause.

There is always a tendency in running water to wash the soil from the hills into the valleys, and during heavy rainfalls a considerable quantity of soil is carried into the ocean. It has been estimated that 1 foot of the whole exposed surface of the earth is carried into the ocean every thousand years. To illustrate this fact, we may say that Professor Geikie has found that the Thames carries 1,865,903 cubic feet of sediment (soil) into the North Sea every year. The Thames is but a small river compared with the Mississippi and the Amazon, for it has been estimated that these two rivers carry annually about 1343 million tons of sediment into the ocean.

The alternating expansion by heat and contraction by cold to which the surface of rocks are exposed, cause the constituent particles to become loosened, and they ultimately break down and form soil.

Lichens and Mosses grow in the film of soil formed on the surface of rocks. When they die they add to this film of soil a certain amount of organic matter, and this substance, as it decomposes, yields carbonic and other acids which attack the constituents of the underlying rock, causing its decay, and thereby deepening the soil. As time goes on there would be sufficient soil formed to support weeds and grasses, and the growth and decay of these plants would soon deepen the soil considerably.

Earthworms are very active agents in the formation of soils. They swallow the earth for nourishment, the swallowed earth being afterwards brought to the surface, and forms the wormcasts. They draw into their holes dead leaves, which they swallow and afterwards excrete in a partly digested form. Their burrows penetrate into the soil sometimes to a considerable depth, and these facilitate drainage, besides allowing the air to penetrate into it.—W. DYKE.

(To be continued.)

COOKING POTATOES.

I SHOULD like to say a word or two on this subject before it is dropped. I consider it a matter of great importance, for it is undoubted that only a small proportion of the cottagers who can grow good Potatoes ever get them really well cooked; and it is probable that not only no vegetable, but few articles of food, show so much difference in value and wholesomeness as badly cooked and well cooked Potatoes.

No, I have got no receipt to put forward, and I do not at all suppose I should be able to do it myself, though I remember gratefully the napkin and wooden bowl of my childhood (mentioned by a correspondent) as bringing before my mind Potatoes that were truly pleasant to the eyes and good for food; but I think that those who do know should use every possible means of bringing before cottagers "how to do it" and "how not to do it," for I am not at all sure that it is not more important even than the combating of the Potato disease itself.

The simplest possible way is a class for boiled Potatoes at cottagers' shows, at which, of course, punctuality in bringing and judging at an appointed time must be strictly adhered to.

In my own village I quite think that this class has done a great deal of good. The first time it was instituted at our cottage show the exhibits showed the need of it as plainly as possible—one dish was a picture, and easily gained first prize. Of course they were tested and tasted. And two or three of the others apparently contained shapeless pieces of yellow soap, as unappetising and unwholesome as possible. The next year the first prizewinner held her own, but there were good second and third, and no very bad ones. And in the third year, or once or twice since, she has been beaten; and last year I could have eaten the lot, and as the hardworked Secretary, and everything else, having missed my luncheon, felt quite capable of it.

How plain it was that, by teaching the wives in this practical way, we had helped the cottagers themselves to a far greater enjoyment of those Potatoes which they grew so well, and gained prizes for in their raw state in the other classes.

Secretaries and committees of cottagers' shows, please note.—W. R. RAILLEM.

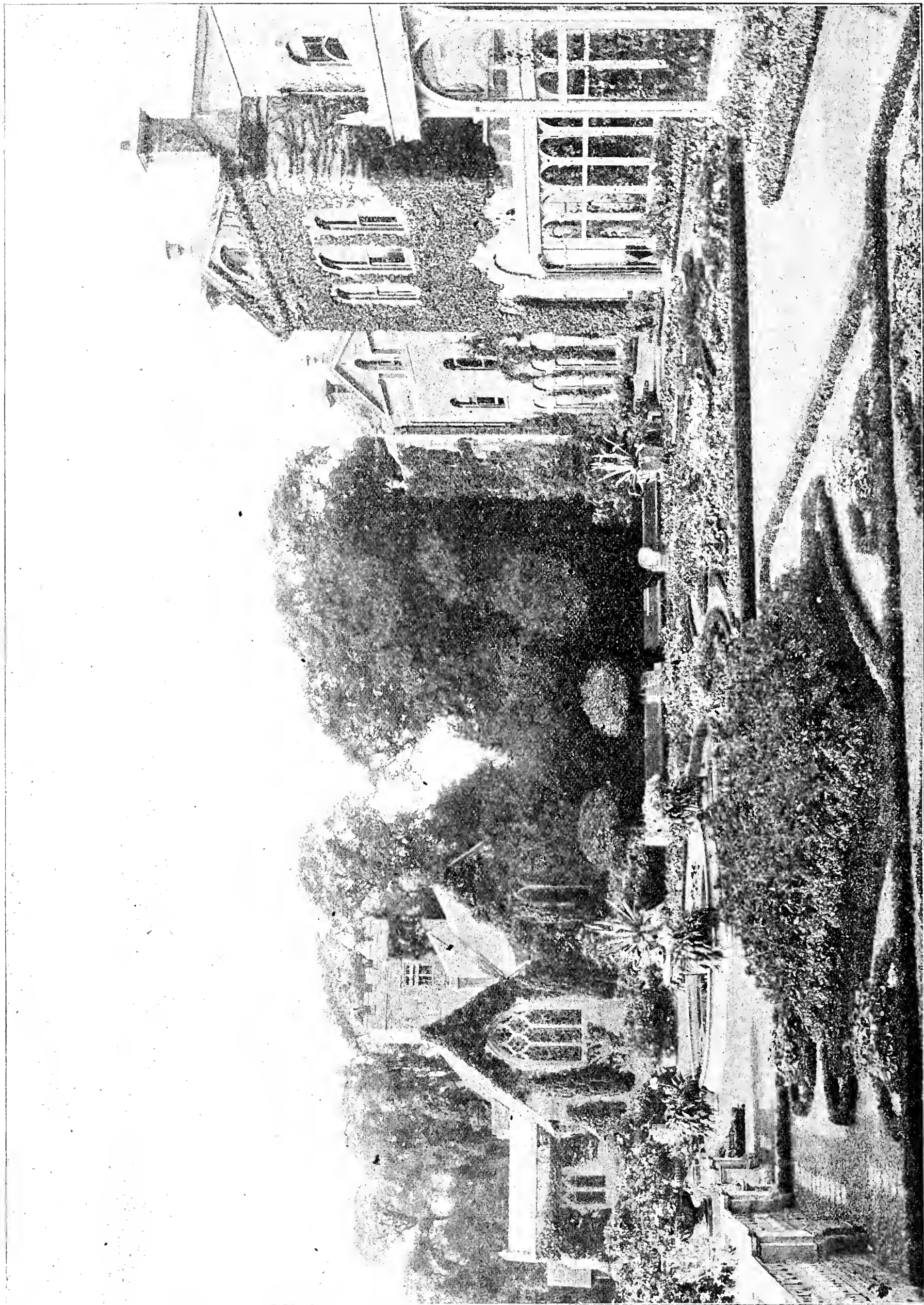


FIG. 45—THE CHURCH AND CONSERVATORY. (See page 202.)



FIG. 46.—A 'VIEW AT LOCKINGE. (See page 202)

HORTICULTURAL HISTORY NOTES.

ALONG LONDON'S NORTHERN HEIGHTS.

RECENTLY a tough fight was fought to preserve intact for the public benefit what yet remains of the old forest of Middlesex near Highgate and Muswell Hill. In various ways the London of our ancestors was advantaged by the extensive woods which crowned the northern heights of the metropolis. Of course they were not near enough to screen the city effectually from the keen winds, but they afforded the Londoners a considerable stock of what was then the chief fuel. Wild fruits and game were obtainable as items of food supply. From the recesses of the woodland arose numerous springs too, which, flowing southward, furnished better water than that taken from the Thames, and refreshed the fields and gardens about the city suburbs. Even now, below the level of sewers and mains, a few of these streams are believed to pursue their course; the ancient Walbrook for instance, which burrows under central London, has been detected by accident. Three rivulets at least passed through Islington and Clerkenwell—the rapid but narrow Fleet, the Oldbourne, and the River of Wells or Turnmill Brook, which joined each other near Holborn Hill to cross Fleet Street on their way to the river.

Probably it is due to the circumstance of not only the north of London, but all its sides, having numerous springs and brooks, that the vicinity was formerly so rich in native species of plants. Something, indeed, must be allowed for the fact that its Flora underwent a more thorough research in bygone years than did that of other English towns. Curious to say, even in last century, before the suburbs were extensively built over, many plants had become scarce, not from the over-zeal of eager botanists, but because they were sought for medicinal purposes, or collected to be placed in gardens. Exotics being scarce, the citizens adorned their gardens with native flowers. A long list of these favourites of our ancestors might be made out. Some of them, by cultivation and crossing, underwent great changes, and became parents of plants which are esteemed not only in Britain, but in other countries. Could we call up a picture to the mind's eye of the gardens cultivated about London by the pioneers of modern horticulture, we should see them numerous in the north, especially at Hoxton, Pentonville, and Clerkenwell, clustering specially in the neighbourhood of the City Road.

It remains on record as a noteworthy fact that citizens who had gardens in this direction were amongst the earliest vendors of vegetables along London streets. They grew, during some seasons, more than they required for themselves, and sent their servants to sell it. This practice is mentioned in records of the fourteenth century, because they sometimes tried to push business near church gates, where people congregated, to the annoyance of the clergy. Besides various vegetables, we read of Cherries being sold, that fruit being much grown then north of London. Strawberries were well known about that date; some think produced in gardens, the Hautboy (*Fragaria elatior*) having been transplanted from copses; it was certainly once a much commoner wild plant than it is now.

We might suppose it was an easy thing four or five centuries ago to carry on gardening about the northern suburbs; such, however, was not the case. Many of the citizens, it is true, had villas scattered here and there in the time of the early Henries, having large gardens attached with numerous trees, most of them exhibiting labyrinths or parterres, as were then fashionable. But these residents did not look favourably upon intruders who wanted to use land for cultivating vegetables, while the London folks generally objected to the enclosure of fields or pastures over which they had freedom to stroll and play games. During the reign of Henry VIII., when some ground at Hoxton and Islington had been fenced for gardening purposes, a mob of angry apprentices turned out with the cry of "Shovels and spades!" They threw down the barriers and filled up the ditches. Indeed, Islington, a promising locality as to soil and situation, seems through such opposition to have been slow in developing market gardens or nurseries. Even for the cows, of which many were fed there, we read that Turnips and Potatoes were brought from a distance which might have been grown on the spot.

Hoxton, the Hogsdon of olden time, once perhaps a resort of pigs, came in advance of Islington. There, in the seventeenth century, were the gardens of Darby, Pearson, and Ricketts. Later on the place was made famous by Fairchild, who had a vineyard and a nursery extending to Kingsland. He was an author and botanist, whose "City Gardener" had much repute. On the edge of Hoxton, and linking Clerkenwell to Shoreditch, was the Old Street Road, celebrated for its flowers and fruit during the reign of Elizabeth, where the poet Daniel had a garden of rarities. At

Clerkenwell there was a vineyard about that date, or earlier, upon a hill rising above one of its streamlets. One of the numerous French emigrants who rendered our horticulture great service settled himself in the neighbourhood of Penton Street; his name was D'Aubigne. The ground became well known as "Dobney's Gardens," and passed through many hands, not being all built over till 1835. It turned to a sort of pleasure garden at last, and in it Wildman, the noted bee tamer, exhibited in 1772 his favourite bees.

Pentonville, a name quite modern, arose from certain fields belonging to a Mr. Penton, now built over, and is used vaguely, applying to a part of Islington; but the original Pentonville belonged to Clerkenwell. Gerard speaks of it as an estate owned by the nunnery and called "Mantells," properly Mandevilles, it having been the gift of that family. It is likely that upon it the nuns had cows and grew some herbs which were of repute then in cookery and physic. When it passed from their ownership after the Reformation fruit trees were planted on part of the land, and various pleasant gardens sprung up about Pentonville adjacent to the New River, upon the beauties of which Charles Lamb, the essayist, dilates, writing to his friend Barton from a cottage in the rural-sounding Colebrook Row. Adjacent to New River Head there was to be seen until lately a well preserved plot of ground, illustrative of the style of the Georgian period.

Islington, when it started nurseries in the eighteenth century, did not obtain such a repute for flowers as belonged to some of the western and southern suburbs, though we do read that Mr. Redmond of that place obtained in March, 1756, half a guinea each for his new Auricula called *The Triumph*, a price which seems to have occasioned surprise. Oldest, probably, of its nurseries was that known as Solimon's nursery of late years, also Barr, Parker, and Watson had nurseries early in this century; but hundreds of acres were under grass till they fell into the hands of the builders. Holloway, too, had only a few market gardens. Its most notable garden was a botanical one, originated by Dr. Pitcairn, who died in 1791. He had only a space of 4 acres, but into this he crowded a great variety of foreign and curious plants.

Kingsland bears a royal name, and was probably a part of the Crown suburban estates. Pepys tells us he went thereabout with his bow to shoot birds before the Civil Wars. The Bassingtons had a nursery here in the reign of Anne, and at the time Loudon described the London gardens it was carried on under the same name. It has now been built over, and also that occupied by Ross's establishment; he had market gardens in addition. To Canonbury belong memories of monkish pioneers in horticulture, for the manor belonged to St. Bartholomew of Smithfield, and the priors grew plants and formed groves for their delectation. The mansion was rebuilt by the last prior, Bolton, who stuck up about the premises his punning device, a bird-bolt or arrow shot through a tun. He much loved gardening, and planted Figs, Mulberries, and other trees, dying in 1532. Descendants of these are still pointed out.

That good old worthy, Abercrombie, we associate with northern London, for there it was he chiefly made his home. All admit that his book was highly instrumental in diffusing a taste for gardening, and showing how it could best be practised; perhaps no other upon the subject has been so long a household word as his "Every Man His Own Gardener." (Perhaps, were he writing it now, he would drop the masculine appellation.) Though Goldsmith promised help in its composition he never gave it, and the honour, for which Abercrombie paid, of the Duke of Leeds' gardener giving it his approval did not add anything to its success. He was one of the many Scotchmen to whom British horticulture is greatly indebted. From an Edinburgh market garden he came to Kew at the age of eighteen, and after a little while there he obtained a situation at Leicester House, then at other places. His first venture on his own account was after marrying; he worked garden ground at Hackney in 1770, whence he brought produce to old Spitalfields Market. Afterwards he went to Tottenham Court, the mansion having become a place of entertainment. He took some of the land adjacent to Tottenham Court and Hampstead Roads, carrying on successfully a seed and nursery business. He had also a place at Newington, in Surrey. Many came to see his collection of exotics, and to buy his choice fruits. It was one of his peculiarities to adorn his garden with pieces of poetry of his own composition. The last twenty years of his life, between 1786 and 1806, were spent in Somers Town.

Hampstead never attained to any repute as a home of nurseries, but it was noted for its hay, though gardeners used to visit Lord Mansfield's house and grounds early in this century to view his display of Rhododendrons and American plants. Rosslyn House was also celebrated. At Highgate James Coel or Cowel had a herb garden about 1560.—J. R. S. C.

FLOWERING TREES AND SHRUBS.

(Concluded from page 183.)

EVERGREEN.

THESE should always be planted to a considerable extent in the formation and remodelling of gardens, because there are various positions where it is undesirable to plant trees which present only bare branches throughout the winter. True it is that there is beauty in leafless twigs, but they are not effective screens during the dull season, and the object in planting is often to hide buildings or unsightly places, as well as to form secluded spots. Both these objects can be secured by the employment of evergreen trees and shrubs, and if a fair proportion of them are showy flowering ones there need be no lack of brightness and variety.

In the southern parts of England *Arbutus unedo* succeeds well, and where it does so it presents a most attractive and unique appearance during the early autumn months, for then its white flowers and large scarlet fruits hang in numerous panicles from shoots well furnished with deep green leaves. Here in the Midlands I have not seen it fruiting, although we have a few large plants which flower annually, and for its flowering qualities alone it is worth growing.

All points considered, I fancy it would be difficult to find a more showy and useful genus of flowering shrubs than the *Berberis*. The species and varieties are all easily grown, and when once they become established produce a fine display of blossom each year. Seasons seem to affect them but little, for their flowers come and go with unfailing regularity. *Darwini* is a species which should be grown in every garden where there is room for one *Berberis*, as it forms a densely branched handsome shrub, which is most attractive at all times. The flowers are of a bright orange colour, and are produced in wonderful profusion on gracefully arching branches. Plant it if possible on a bank in a sunny position; it will then thrive well, and display its charms to the best advantage.

B. buxifolia, better known as *dulcis*, is an exceedingly elegant kind, which produces long slender shoots, and leaves of a fresh green colour; the latter associate well with the soft yellow colour of the flowers. The plants should be given a good position, as they are not so well able to take care of themselves as are those of *Darwini*. *Nana* is a pretty form of *dulcis*, which seldom grows more than 2 feet high. *Stenophylla* is a fine variety for planting upon a rockery—on a bank, where it can be kept clear of stronger-growing shrubs. It never attains a great height, but sends out long graceful shoots, which in time droop almost to the ground. It may be correctly termed a pendulous variety. Of the well-known *aquifolium* there are several forms, the principal difference between them being in the size and style of their leaves. All are excellent for planting as a fringe to shrubberies, for covering banks, or unsightly places under the shade of trees.

By pruning the plants annually, just before growth begins, they quickly form a dense mass, and may if required be kept to a foot in height, or if necessary they will reach a height of 5, and yet present a dense leafy surface. *B. japonica* and *B. nepalensis* are both handsome varieties, of upright habit of growth, which produce very large leaves. They should be planted in deep rich soil, in a somewhat shady position.

Buddlea globosa is unfortunately not often met with, doubtless because it is somewhat tender but if given the protection of a wall and a south aspect, only our most severe winters injure it fatally. Its flowers are so unique in appearance that they are worth taking some trouble to secure. *Choisya ternata* is another neglected shrub, which bears a profusion of strongly scented white flowers, much resembling Orange blossom. I consider it to be perfectly hardy, as we have a large plant growing on a wall that sweeps round to the east, at a point where the wind sometimes catches it with tremendous force, yet this plant was not materially injured during the severe winters of 1893 and 1894. Cuttings root quite easily, so there is really no valid reason why this scented shrub should not be universally grown.

Cistus ladaniferus (Gum Cistus) with its cup shaped, delicate white flowers should be grown wherever a small space of wall, having a sunny aspect, can be spared. *C. l. maculatus*, *C. creticus*, and *C. florentinus* are also good varieties.

Good specimens of *Desfontainea spinosa* are sometimes met with in the south-western counties, and, although I am not sure if it is quite hardy in the Midlands, it is certainly worthy of being given a trial on account of its great beauty when in flower.

Daphne Laureola (Spurge Laurel) is a well-known low-growing shrub, useful for growing under the shade of trees, as the shoots branch freely, and are very pliable by pegging-down; a single plant will in time cover a large space and be kept quite dwarf. *Pontica* is highly prized on account of the delicious fragrance the flowers

emit, especially in the evening; for this reason it should be freely planted in various positions.

Fully expanded flowers or opening buds may usually be seen on the *Laurustinus* at Christmas, unless the weather is exceptionally severe. After very sharp winters many of the older branches are killed to the ground line; it should therefore, if possible, be planted in a rather sheltered position. *Frobeli* is a very compact form, bearing pure white flowers, and judging by the behaviour of the few plants we have of it, it is hardier than the common form.

Among the *Ligustrums* (*Privets*) *lucidum* and *l. coriaceum* are two of the most showy; the former flowers in early autumn and the latter in June or July. Each bears large panicles of white or greenish white flowers.

Like many other indigenous plants the several varieties of *Ulex* are extremely showy, and well adapted for planting in gardens. Good dwarf bushes are always telling when in flower if situated in the foreground of shrubberies, but to my mind their great value lies in their capacity for clothing dry banks where the soil is poor, and perhaps interlaced with tree roots. In almost every garden places of this description exist, where many things have been planted with but poor results. To all who have a difficulty of this kind to overcome my advice is insert at once seeds of *Ulex europæa nana*; do not be sparing of seed, and when the young plants appear keep them free from weeds. By doing this you will in the course of a few years be able to convert an unsightly spot into one presentable in appearance at all times, and which in the early spring months will be a vision of golden beauty.

Many of the *Veronicas* are pretty dwarf shrubs, unfortunately not quite hardy. What a gem *Andersoni variegata* would be were it perfectly hardy! In sheltered positions I have known plants thrive well for a few years, but they have always succumbed to severe winters at last. *Traversi* is, therefore, the only one I recommend for planting, except in especially favoured districts.

In drawing these notes to a close I am tempted to express the hope that they may be the means of directing attention to the desirability of planting more extensively the good things sent us from foreign lands, so that this fair island may be made fairer still. We all, I think, must sometimes read with envy the graphic descriptions given by travellers of the floral beauties to be met with in more sunny climes; but methinks that England may be made as bright and beautiful as any, seeing from how many countries we obtain shrubs which will blossom in full glory here.

Botanical collectors have done their part towards the achievement of this result by expending their energy and risking their lives to send us the best the world can give. To complete the work the mutual efforts of gardeners and their employers are required, for if the latter contribute some of their wealth towards the project, and the former select, plant, and cultivate intelligently, time and a bountiful Creator will do the rest.—H. DUNKIN, *Castle Gardens, Warwick*.

THE MISSION OF FLOWERS.

FOR surely flowers have a mission, if it be but to assure, to comfort, and to cheer. It is not only nectar for bee and butterfly, and seed for birds, but variety, beauty, and fragrance for the wayside embellishment, so that he who runs may read. The more we take delight in the study of Nature the more we appreciate and enjoy it. Sir Thomas Browne speaks wisely on this subject. "The wisdom of God," says he, "receives small honour from those vulgar heads that rudely stare about and with a gross rusticity admire His works, those highly magnifying Him whose judicious inquiry into His acts, and deliberate research into His creatures, return the duty of a devout and learned devotion." Most of us enjoy beauty of form and colour and sweet odours. What can one have more beautiful than even our common wild flowers—the chaste elegance of the peerless Lily of the Valley and the wreaths of the fragrant Wild Rose? Were the humble wildings that carpet our woodlands, and garland our hedges, and put a bordering of *Myosotis* and *Meadow Sweet* along our riversides less abundant, we should perhaps admire and esteem them more. But, alas! our children are too much occupied at school in the wretched routine of the so-called education given that there is no time to "consider the Lilies."

I cannot help thinking at times of that Carpenter's Son who, with his faithful followers, "downhearted," as country folk say, passed through the fields of Galilee, rubbing now and again the ears of corn in their hands, as they were allowed to do by their code of laws. "Knowing their thoughts," he pauses by the way to utter those few poignant words, "Consider the Lilies, how they grow!" And surely the humblest florist must be convinced of the absolute truth that "even Solomon in all his glory was not arrayed like one of these." Glance into the corona of the wild *Narcissus*,

bespangled with crystals of gold, or the sculptured snow of the Lily of the Valley, or the ultramarine in the throat of the Gentian, was it only for bee and butterfly that these were thus "clothed?" What a boon for the London poor is the presence of Covent Garden in their midst! Not merely for the employment it provides, but the comfort and cheer of the crowded streets. Those masses of many golden tones that decorate our streets, the Daffodil—what a treat it is to rest the eye on them, and pause for a moment to inhale the refreshing fragrance! Morning after morning fair Flora's fountain overflows, and even the grimmest thoroughfare is enlivened and sweetened by the breath of flowers. To the poor labourer, forced through lack of employment on the soil to seek the means of sustenance in crowded London, what happy reminiscences do the flowers bring of his village home with his little cottage garden—the Violets, Stocks, and Gillivers, the Roses, Pinks, and Sweet Peas, the Lad's Love, Rosemary, and Lavender! How seldom is it that a bunch of flowers or a plant is to be seen in our great London Board schools! and yet what a treat it must be for weary teachers and the serried ranks of wearier children to rest the eyes for a few moments on a flower!—the one link between the dismal, noisy streets and the beautiful world beyond them.

The vast improvement in our London parks and gardens is another boon to the poor, another message from the flowers, and how greatly the delight would be enhanced by some knowledge of the flowers admired. There are at least three farm lads who were lovers of flowers, and wrote of them in unforgotten verse. Imagine Robert Burns stopping his plough in mid-furrow to apostrophise the "wee crimson tipped flower," that "bonnie gem!" Bloomfield and Clare, too. What a fund of unalloyed delight this love of flowers and Nature must have been to them. "I thank God," said an old friend, "for giving me this love of Nature. From the time I was a chubby 'four-year-old,' when I used to prowl round my father's cottage garden and into the adjoining meadows to gather wild flowers, or peer into the nest of the thrush and blackbird until now. It is a pleasure that ne'er grows old. The picture may tone with age, but it never loses its freshness and charm."

I remember giving a wee lassie a few Roses to take to her father in the hospital, and begged the Secretary's permission to glance through his window into the ward, where the poor fellow lay. It was a comfort and delight to him—a flower, a Rose. But on the opposite side of the room a poor pale-faced lad was watching with longing eyes. At last he must speak perforce. "Do give me one bud, little lass! Our folks know how fond I am of flowers, and yet they never send me one. They won't come to-day!" The father culls an opening bud from the little bunch, and gives it to his daughter. "Tek it to him, Sue." Then Sue, with a deeper blush on her already rosy cheek than that of the Rose, hurries across and gives him the flower. "Thank you, my dear," said he, looking across at his co-patient—the father. How the poor lad gazed into its deep recesses, and drank of the fragrance in eager draughts until gentle sleep fell on his weary eyelids, after giving one grateful glance at the child and her father.

It was a bud half open of the dear old Provence, the Cabbage Rose of cottage gardens, the most fragrant of all the tribe. One doesn't hear so much of the so-called "flower missions" as years ago. I fear it is because the recipients are so much lectured and pestered with good advice that the gift is less welcome. The flower can tell its own tale perhaps; a flower worth the giving, a kindly look, a gentle pressure of hand, and then a word in answer to the "Do come again, friend." "Yes, certainly, and I'll bring you another Rose." I have known such—there are more of them than some good folk believe.

John Burroughs, the delightful American writer, twice at least paid us a visit, once to see our wild flowers at home and again to hear our nightingale. He urges the beauty of American wild flowers, but is compelled to admit the splendour and vast profusion of our common wildings; acres of Primroses carpeting our woodlands with their green and gold, and acres, too, of wild Hyacinth stretching away down through the vistas of the woodland, bluer than Italian skies; miles of stately Foxglove, which seemed to delight him even more; long lines of foamy Meadow Sweet, huge rafts of Lilies, and the infinite variety and tones of the spring verdure.

Now in London there is not, perhaps, one room in a hundred in which even a green leaf may be seen, much less a flower. And what is worse, there seems to be no desire for it. And yet there is not a window sill in the gloomiest of London courts that might not bear its burden of a box or pot of flowers, in spring and summer at least. Now this love of flowers might be begotten and cherished in the schoolroom. But pause a moment. What would the stingy folk say whose only object in securing a seat on the School Board or management is to consider the ratepayers? What would such folk say were someone to suggest window-boxes for schools?

One may almost imagine the indignant scorn of those who begrudged a piano to accompany the singing. Music and drawing and flowers! What are we coming to?

There is no more delightful and instructive recreation than the cultivation of flowers, and the greater the difficulties encountered and overcome, the greater the satisfaction and delight. One thinks of the naked dingy walls of our London Board school playgrounds, and the few pence in a hundred pounds properly expended that would invest them with interest and significance. Why should not these be utilised as wall gardens? Ivy, Virginian Creeper, and Euonymus would grow on walls with any aspect, and, for at least four months of the year those pretty annuals *Nasturtium*, Canary Creeper, and *Convolvulus*, would serve to cheer and lighten the grimy and repulsive surroundings.

Another circumstance suggests itself. There are thousands of country houses unoccupied for a portion of the year—the London season—when acres of flower beds are left to waste their sweetness on the "summer air." There is a society in London—or was—whose function it was to embellish the school-room walls with works of art, to put before the eyes of children "things of beauty" in the way of pictures. Now, what picture could be compared for a moment to a healthy plant in a pot, or a vase of flowers? Such a society might be the means of suggesting to the owners of country houses the delight they could provide at a mere trifle of expense to poor town children.

And then, when the woodlands, and fields, and hedgerows are spattered over with wild flowers in April, May, and June—acres of Primroses and Hyacinths, and miles of fragrant Hawthorn to be had for the gathering, what a pleasure it would be to the teachers to distribute these, and thus help forward the mission of the flowers! Some day it is to be hoped every school in town as well as country will have its garden, if it be but a strip of the playground, where something green may live and grow; then, at least, something more may be hoped from the mission of flowers.

—HERGA.

ROYAL HORTICULTURAL SOCIETY'S COMMITTEES' AWARDS.

REALLY I cannot for one moment admit the correctness of the deductions of "F. R. H. S." in relation to my comparisons of the liberal awards made by the Council at York and Chester, and those of the Committees at home. He places for comparison the awards at the Temple Show of last May (sixty), as against those of the Council at York and Chester (seventy-two) at two shows. But then, how diverse the conditions at the Temple Show; not a single money prize is given, and the awards (sixty) include almost everything exhibited. To have made the comparison even, "F. R. H. S." should have included the prizes awarded at the two provincial shows.

That is enough on that point. As to the proposition that every member should be compelled to vote on a proposed award one way or another, I see no objection, but I do not think the present too free making of awards would be restricted in the least. On the Orchid and Fruit Committees members are supposed to be such because they have some knowledge of all the subjects which come before them. On the Floral Committee, where many members are specialists only, the case is different, and might lead to difficulties. It is no fault of mine that awards are so freely made. I still hold that the Council in complaining should have gone farther and told the Committees how to avoid this liberality.—A. D.

[That is what "F. R. H. S." seems to think, and we are disposed to agree on the point. It is not the first time the Council has complained ineffectually without suggesting a practical remedy. "A. D." omits reference to the two-thirds majority proposition, perhaps accidentally.]

GOLDEN FOLIAGED PINES.

IT is the exception rather than the rule to find species or varieties of the genus *Pinus* with foliage of any other colour than green; a few, however, exist, and it is my wish to draw attention to two of the better of these as ornamental garden plants. The better known of the two is the golden form of our British Pine, *Pinus sylvestris aurea*. In exceptional instances plants of this variety are found growing freely, and having every appearance of making small trees; more often, however, the plants are stunted in growth, and make bushes a few feet high.

A plant of recent introduction, and one which appears to be of a more free growing disposition than the former, is the golden variety of the Japanese *Pinus Thunbergi*. The leaves of this are from 4 to 5 inches in length, quite 2 inches longer than those of *P. sylvestris*, and altogether the plant has a more elegant appearance than the first mentioned. Whether grown singly or in masses these golden Pines have a most striking appearance, and are well worth growing.

A variety of *Pinus Thunbergi* called *variegata* has recently been introduced, which has the leaves alternately banded with half-inch bands of green and yellow; it is not likely to become popular, however, as the yellow portions have a tendency to revert to green. Either of these varieties may be increased in spring by grafting on stocks of their respective species.—W. D.

GILIA BRANDEGEI.

THE annual Gilias are better known and more extensively grown than the biennial and perennial forms, though some of both of the latter are worthy of a place in every garden. *G. Brandegei*, the perennial species represented in the engraving (fig. 47) forms tufts of small 'peculiar and pretty leaves, alternate on the leafstalk; the flower stems are erect, from 6 to 8 inches in height, giving a succession of bright primrose-yellow flowers all through the summer and autumn. It is perfectly hardy, and seems to flourish best in a damp shady situation; if on rockery the natural drainage will be found sufficient. Planted out in a position where it can be treated liberally it attains a large size for a *Gilia*, forming in one year a clump from 1 to 2 feet in diameter. The young growths or side shoots may be struck readily under a hand-glass in August and September. It is a native of the Rocky Mountains of South Colorado.—GROWER.

MARCH PROPAGATING.

CHRYSANTHEMUMS.

MARCH is a very suitable time to propagate by cuttings all sections of *Chrysanthemums* when plants are wanted simply for decoration. There is even time to root plants for show purposes, especially those which are to furnish dwarf plants for grouping, or to reduce in height by cutting down low in May or June. Early rooted plants intended for the latter purpose cannot be cut down quite so low because the stems at the base are so much harder, and it is well known that woody leafless portions of stems do not break readily into growth. Hence we find the utility of spring rooting when plants are required to break as low as possible. By inserting strong cuttings of many of the exhibition varieties good plants, which will produce excellent flowers, may still be rooted, due regard being paid afterwards to the details of cultivation throughout the summer.

The late varieties form a valuable section because of their importance for December and January cutting, when flowers are naturally limited in quantity. Some excellent varieties have been mentioned for this purpose in previous numbers of the *Journal of Horticulture*. There can be little doubt that if more attention were paid to cultivating good stocks of the varieties recommended by the practical correspondents who have described the merits of the most suitable, a liberal display of bloom might be had at the period mentioned. This is a good time, then, to commence carrying out the ideas, thus enlarging the season and interest in *Chrysanthemums*. If cuttings are not easily obtainable, small rooted plants may be had in the course of the next few weeks from the trade growers. These are sure to do well when cuttings might fail, but the latter is a remote contingency at such a favourable period of the year for propagating.

Early *Chrysanthemums*, too, are much appreciated, and ordinary growers cannot do better than cultivate a quantity both in pots and borders.

Varieties that afford strong cuttings may be rooted in small pots singly. Small and weak cuttings are always best round the edges of larger pots. Quantities of one kind may receive accommodation in large pots and shallow boxes. Use sandy, light soil, and give simple treatment in a slightly moist heated temperature until roots have formed.

ZONAL PELARGONIUMS.

Insert strong cuttings singly in the centre of small pots, using sandy or gritty soil. Place in full sunshine on a warm shelf in an intermediate stove or warm greenhouse. One good watering will suffice for a time, as it is not desirable to maintain the soil too moist. When a little on the dry side the cuttings callus more freely and root sooner. Occasional light skiffs with the syringe afford sufficient refreshment. As soon as rooting does commence a more constant state of moisture in the soil is necessary.

As they advance in growth give cooler treatment. Nip out the tops when growing freely, so that bushy plants may be produced. Plants in quantity for bedding may be rooted round the edges of pots and transferred singly to 3-inch pots when well rooted. Spring propagation is chiefly resorted to for increasing stock of any particular variety, and to furnish plants for autumn and winter flowering in pots.

LOBELIAS.

Lobelias, blue and white, readily increase by cuttings at this season, when a stock of plants is at hand to commence with. Old plants potted in autumn and kept in a healthy condition furnish abundance of growths, which are constantly emitting roots while still remaining attached to the parent plants. These taken off and inserted will quickly become established plants. Little preparation of the cuttings is needed, but a few large bottom leaves may be removed. Insert as soon as possible, placing them thickly together in shallow pans, pots, or boxes filled with leaf soil, a little loam, and sand. Water in the cuttings with tepid water.

The receptacles should be placed in a moist bottom heat of 65°, maintaining a humid atmosphere about them. This is best secured by a moist base of cocoa-nut fibre, through which, if kept moist, the heat can rise. Frequently dew over the cuttings with the syringe. When well rooted and growing apace the tops can be taken off and rooted similarly, or constantly pinched to keep the growths compact and bushy.

FUCHSIAS.

Now that old plants of *Fuchsias* are commencing to make growth freely, numbers of stout, short-jointed cuttings may be secured. It is quite as well to root them thickly round the edges of small pots, and afterwards divide them into single plants, placing each in a small pot in good open soil. They also root freely in boxes, from which they may be transferred as readily as from pots. Soft young growths with a heel attached form very suitable cuttings, obtaining them when about 1½ to 2 inches long. Remove the bottom leaves, two pairs being sufficient for each cutting to carry. Insert in the soil to the bottom pair. The compost must be a light sandy mixture of loam and leaf soil. Surface with a layer of sand, and after insertion gently water the



FIG. 47.—GILIA BRANDEGEI.

cuttings. Place in a moist, warm temperature, shading from strong sunshine.

In a house that is regularly humid and warm, the cuttings can be maintained fresh without confining them closely in frames or under hand-glasses; but in a dry though warm structure this may be necessary and beneficial by assisting the maintenance of a regularly moist condition of the soil. It prevents rapid evaporation, which if excessive soon causes the foliage to droop. This destroys their chance of rooting, or at least retards them from doing so.

COLEUSES.

March is the best month to commence rooting a fresh stock of *Coleuses*. Old stock plants, or younger examples rooted in autumn for preserving through the winter, furnish the necessary growths. They should be, of course, the strongest obtainable. There is not, however, much difficulty with young wood which is freely growing, whether strong or weak; but the strongest make the best plants the soonest. *Coleuses* like plenty of heat and moisture, and without these essentials rooting cannot be insured. A fair amount of light must also be given from the first—in fact, unless the cuttings flag in sunshine, give no shade during the process of rooting. Almost any sort of sandy soil is suitable for

Coleuses when rooting. Afterwards give them something a little richer. Loam two parts, leaf soil one part, with sand and a little decayed manure, the latter when finally potting. Insert stout cuttings singly in 2½ or 3-inch pots, and weak ones round the edges. Coleus Verschaffelti, the variety used for bedding, may be rooted in quantity in boxes stood on hot-water pipes, frequently syringing to maintain them fresh.

PETUNIAS.

Vigorous young plants of Petunias may soon be obtained by inserting sturdy cuttings obtained from the base of old plants retained for this purpose through the winter. A number may be placed together in pots of convenient size, standing on a moist base in a propagating pit. Extra vigorous cuttings might each have a separate pot from which they can be transferred to larger without damaging the roots. Double varieties are the most useful for pots under glass. Single varieties are more floriferous for outdoor culture.

Other useful plants for bedding and pots include Heliotropes and Carnations, cuttings of which may be inserted now in a brisk bottom heat. All the tender bedding plants, such as Alternantheras, Iresines, Mesembryanthemums, Gazanias, and Marguerites can be rooted thickly in shallow boxes where they could stand on a row of hot-water pipes or be accommodated in a propagating pit or a gentle hotbed. It is an easy matter to give them more room when rooted in other boxes, in which they can remain until required for outdoor planting.—E. D. S.

WATER LILIES.

KEEPING Water Lilies through the winter is considered by many more difficult than growing them and producing first-rate flowers, but, as with many other plants, the more experience one has with the different varieties and their peculiarities the more simple their cultivation becomes. Of tropical or tender Nymphaeas, medium to small tubers are the best to carry over winter, but it sometimes happens that it is desirable to retain a certain plant or variety that has made extra large growth during the summer.

I had several such last season, and by way of experiment I tried what was to me a new method of wintering. After the frost had cut off the foliage I awaited a mild spell, and then with a spade dug around the plant; I gave it a root-pruning, taking care to keep outside of the tubers, so as not to cut them, then with a spade on each side lifted the stool intact. This was again planted in the soil, which is sandy, under the bench in the greenhouse, and thoroughly soaked with water. After a few days the roots were much decayed, and another soaking of water was given to settle the soil around the old crown and attached tubers. In this condition they were left, and on examination at this date (February 2nd) the tubers were in excellent condition, and will remain so for a long time. Even the hardy varieties treated in this way are keeping better than I had expected.

This treatment is not so well adapted to large plants of the stellata type, as they do not form side shoots and tubers. The best method for carrying these over winter is to keep them growing. These, though very large, were severely root-pruned, the largest leaves taken off, and potted into as small a pot as would hold them, which was 10 inches. The plants have kept growing slowly, and are now fine and healthy with flower buds. The water has been at a temperature of from 60° to 65°, which is the temperature of the house.

Such winter-flowering aquatics as Nymphaea stellata, N. zanzibarensis and N. pulcherrima have been in bloom all the winter. The latter variety is the best of any of the blue forms. The flowers open quite early in the morning, and remain open until late in the afternoon, whereas those of N. zanzibarensis seldom, if ever, open until noon or shortly before. Little can be expected in the line of Water Lily flowers during December and January, but N. delicatissima and a seedling much like N. Smithiana have not failed to produce flowers of good size and substance. N. O'Marana has proved a disappointment. It was hardly recognisable as the plant which I saw in such good form, condition, and colour out of doors last summer. N. devoniensis and N. rubra are better.

Aponogeton distachyon proves a first-rate winter-flowering plant. It enjoys a temperature of 50° to 60°, and blooms freely all through the dull sunless days. The flowers are sweet-scented, resembling Hawthorn, and are good for cutting.

We have decided to raise some Water Lilies from seed, and as it takes between three and four months to grow a flowering plant from seed, the sowing must be done at once, of both hardy and tender varieties; 4 or 5-inch pots should be used for the purpose, and sandy loam. If the latter has lain some time and had manure composted with it so much the better, and fresh manure should not be used. The seed should be covered lightly after it is sown, and the pots stood in water until the seed is thoroughly soaked. The pots should be submerged so that the tops are 2 inches below the water. Attention to this particular is necessary, or the seed will not germinate. The temperature of the water should be from 75° to 80°. Victoria regia seed may be sown now, but the temperature of the water must be 85° to 90°, and from twenty to thirty days is required for germination. The young seedlings should be transplanted at an early stage, and kept steadily growing. They must be repotted singly before they are weakened by overcrowding and starving conditions.—W. TRICKER (in "Garden and Forest.")



A. K. WILLIAMS.

IN my article on page 188, that beautiful variety A. K. Williams is by mistake described as "the least faultless in form of the Hybrid Perpetuals." I regret this error, for it is, in my opinion, the most perfect of them all.—DAVID R. WILLIAMSON.

MRS. R. G. SHARMAN CRAWFORD.

ALLOW me to fully endorse the favourable opinion passed upon this Rose by Mr. Williamson on page 188. Having grown it since the first year of introduction, I know of no Rose that has given me greater delight. For freedom of bloom, form of petal, and charm of colour it is a Rose that one can never tire of, and one that should be in every collection throughout the kingdom. Though coming into bloom somewhat early with us, it is again one of our best autumn-flowering varieties, and last year we cut handsome blooms in November. There can be no two opinions as to its being a worthy companion to Mrs. J. Laing.—R. P. R.

HYBRID TEA ROSES.

THE following is an extract from a letter addressed to the Editor of the Journal from one of Her Majesty's Judges at Alexandria:—"Neither I nor any of my neighbours know the difference between a Hybrid Tea and a Hybrid Perpetual, or again between a Tea and a Hybrid Tea, except that the Perpetual flowers more often than the others. We look up the names in a nurseryman's catalogue, and then, of course, we hope we are right; but there must, I suppose, be some classification of the different Roses, and there must be something in the thorns, the growth, and the stems of the flowers that makes an expert know under what category they ought to come."

Now this letter is "nuts" to me, because it is an indication of the confusion that I was sure would arise when the attempt was made to form a new section of the autumn-flowering Roses—namely, that of Hybrid Teas. I think there is no definition which would be explanatory. Were there one I should remember the cautions given to me by a master of logic in my early days (Archbishop Whateley)—"Avoid definitions."

The first of this class which appeared in our catalogues was Cheshunt Hybrid, raised by Messrs. Paul & Son of Cheshunt, believed to be a cross between Madame de Tartus and Prince Camille de Rohan; for years it stood alone, and then we were very much astonished to find that that beautiful Rose La France, which had been sent out by Guillot in 1867, and had always been classed with and exhibited amongst Hybrid Perpetuals, was suddenly shifted over into the Hybrid Tea class.

Hybrid Perpetuals is a misleading name; the French name for them, Hybrides remontants, is much more correct, as distinguishing them from the early summer-flowering Roses, which make their wood after flowering without any buds, whereas the so-called Hybrid Perpetuals give a second bloom from the young wood of the year. There is no doubt that the blood of various classes of Roses have entered into their constitution, but at the same time it would be very difficult to give any definition of them, and the special name by which they are known has only reference to the one point of second blooming. The word certainly gives nothing by which their position can be defined, as in some cases the wood is perfectly smooth and in others very thorny.

Teas have all a peculiar foliage, which, though it may not be easy to describe, is yet easily recognised, and they are perhaps the most truly "remontante" of any sections. If then, as I have said, one can give no definition of what a Hybrid Perpetual is except in the reference to one point, I think it is equally impossible to define what a Hybrid Tea is; and in fact there is a difference of opinion as to the position of some of them. Thus the late Mr. George Prince maintained that Kaiserin Augusta Victoria was in all points a true Tea. It will thus appear that your correspondent is not likely to get the accurate and definite explanation that he wishes. However, the N.R.S. has published in its catalogue a list of flowers which it has recognised under this title, and I shall have much pleasure in forwarding him a copy, which may perhaps serve his purpose.

With regard to that list I may add a few words. That the catalogue comprises ten exhibition varieties and ten garden Roses, while in the supplement there are five exhibition and four garden varieties. Thus the exhibitor who wishes to contend in the special class for Hybrid Teas has only fifteen to choose from, and it is curious to see how these are made up. I have already said that La France for a number of years was counted as a Hybrid Perpetual; now it, Gustave Guinoisseau, Danmark, and Duchess of Albany, three sports from it, are included in the ten exhibition varieties in the Hybrid Tea class. Then, again, Captain Christy, ever since its introduction, until the last year or two has been regarded as a H.P., but is now found in this class.

In the same way Lady Mary Fitzwilliam and Viscountess Folkestone have been taken out of the Hybrid Perpetual class and placed here, while Caroline Testont has been regarded by some as another sport of La France. The same may be said of Mrs. W. J. Grant, which was first exhibited as a Hybrid Perpetual, and I confess that I can see no trace

of the Tea in it. We were told a little while ago that this was the coming class, and yet since 1891 there have only been three added to it.

Perhaps those who are very anxious to extend it will see if they cannot plunder the Hybrid Perpetual class of some more Roses. I do not wish to be mistaken. Many of these Roses are very beautiful. My objection is not to the Roses themselves, but to the position they are made to occupy. I have been led into somewhat of a digression from your correspondent's questions; but the subject was a tempting one to me, for I am considered somewhat of a heretic in the matter, and although your correspondent may perhaps be disappointed I have done the best I could for him.—D., Deal.

FUCHSIA JOTTINGS.

FLOWERS, like books, captivate in varying degrees, some causing quite a craze and taking the world, as it were, by storm; others attracting little or no attention, and others still creating and preserving a reputation that wavers not amid the ups and downs of fashions and fancies. In the latter section the ever-popular Fuchsia is a prominent figure. Before the present race of horticulturists sprang into existence the plant found favour in the eyes of all sorts and conditions of gardeners, and if I mistake not it will hold its sway when this generation is numbered amongst the past. Turn to the early volumes of the old *Cottage Gardener*, and you will find its praises sung by able gardeners who were also able writers, and although the then brief list of varieties has been largely augmented at the hands of the hybridising florist, the principles of culture are the same, and withal so well known that to attempt to teach would only be going over the track now so well trodden, therefore I will be content with a few reminders.

One of the most pleasing features about the Fuchsia is that it does not, like many other plants, only bring pleasure to the favoured few, but adapts itself to varying conditions of cultivation. It is a window plant in the true sense of the word, and behind the casements of the meanest and most obscure cottages are annually grown plants that would do themselves credit in any conservatory. In village home life too the Fuchsia plays its part, and well do I recollect the merits of a certain Lucy Finnis that had been begged as a "slippin'" by a rural postman, and grew and prospered till the plant became a byword amongst the cottage gardeners in the country round. Favoured admirers in turn were provided with cuttings from the famous "Lucy," and in course of time the majority of windows in the village were ablaze with flowers that owed their origin to the postman's "slippin'." I will not attempt to illustrate the excitement at the village show when the plants were pitted against each other in competition for the coveted first prize card.

All honour then to a plant, old though it be, that brings pleasure to the lowly and obscure, and at the same time is indispensable in the gardens of the affluent. Indispensable it is, if such may be said of any plant, for there would be something distinctly wanting in the greenhouse and conservatory were the time-honoured Fuchsia absent. Under whatever condition it is equally accommodating, and one of the most pleasant natural features of the Isle of Man is the hedges of wild Fuchsias, though it is a difficult matter to convince the average Lancashire "tripper" that they are really of the same family of plants which figure so conspicuously in his little greenhouse at home. As climbers for pillars and rafters we have Avalanche and others of similar type, and for the herbaceous border there are Fuchsias coccinea, virgata, gracilis, and many another that give beauty during the summer months, and require no further protection in the winter than a covering of litter to exclude severe frost.

It is, however, amongst the florists' varieties that we have the Fuchsia in its most pleasing aspects, and at the present time plants that have been resting through the winter are pushing their young growths and propagating is going forward. For the adornment of corridors and large conservatories old plants are extremely useful, and as growth is now commencing potting should be proceeded with. Branches should be thinned and trimmed, the idea being to train the plants in pyramidal form, and later if a succession is needed a portion of the plants may be removed to a somewhat shaded position outdoors and brought in as required, by which means a fine display of specimen plants may be kept up throughout the season. Light and air are conducive to sturdy growth, and when the pots are full of roots applications of liquid or chemical manure may be given with advantage. Soot is a capital fertiliser, as it gives sturdiness to the foliage.

Plants for all purposes may be now raised from sturdy cuttings taken from the old stock. Small well-flowered examples in 5-inch pots are well suited for table decorations, and larger specimens may be grown for the conservatory or exhibition purposes. The routine of propagation is so simple and well known that there is no necessity to go over the old ground again. Abundance of light to keep the young plants short jointed is the chief requisite, and not allowing them to become too pot-bound before shifting to larger receptacles. The principal training required is to place a stake to the main stem, not stopping the leading shoot, but pinching back the side growths, in order to insure a compact habited plant. If late flowering plants are required it is advisable to remove a portion to the shelter of a cold frame. Fuchsias are not commonly subject to attacks from insect pests, red spider being the worst, and this may be kept in check by frequent syringing.

Since the revolution in the old stereotyped system of bedding, and graceful effect has taken the place of stiffness and formality, the Fuchsia

plays no small part in the adornment of the flower garden in summer. To see them in perfection one should pay a visit to one of the public parks, where they are largely used. There the graceful habit is shown to great advantage, and one is rather surprised that they are not more largely grown for this purpose in private gardens. If planted in beds with a groundwork of Violas or other dwarf-growing plants nothing could be more effective, the chief care being to pinch off the seed pods as the flowers fade in order to insure continual blooming. Then, again, as single specimens for planting here and there in the turf they are admirable, and for this purpose they are often allowed to remain in the pots, the latter being sunk into the ground and the turf replaced round the stems.

Such are the uses of the old-fashioned Fuchsia, and where have we another plant so generally accommodating? Varieties are numerous, and one has only to run the eye down the lists given in florists' catalogues to notice sorts that have been in cultivation for years, and also others of more recent introduction. Another doubt arises as to whether as much care is taken over the cultivation of the plants as was once the case. In the days of trained Azaleas, Heaths, and other specimen plants pyramid Fuchsias were a feature at many of the leading shows. Granted that utility has to a great extent taken the place of formality, is this sufficient reason that the growing and exhibiting of specimen Fuchsias should be given up, for not are they only monuments of horticultural skill, but in every respect graceful and artistic? At the great summer exhibition at York there are always to be seen fine plants, and with this exception I do not remember having seen anything out of the ordinary during recent years.

Perhaps the Fuchsia has become to be looked upon by the gardener as only an amateur's plant, and not worthy of the superior skill of the former. If so, the sooner such an idea is banished the better, for long service has proved its worth, and no occupant of the greenhouse gives better returns for care on part of the cultivator. But I have said enough; I only intended to remind, and in the rush for the new let us fully realise the usefulness, beauty, and utility of the old.—H. H.

BRIEF NOTES ON ALPINE FLOWERS.

HEPATICAS.

WE have had references to these old-fashioned flowers both in an interesting article by "R. P. B." and in "Hardy Flower Notes." A catalogue which has just come to hand contains a wonderfully varied list of these flowers, which may interest others in addition to the correspondents who have written of them. *Acutiloba*, *angulosa*, and *angulosa* major are offered. Then there are the deep purple blue H. Barlowi, the common single blue and red, and the European form of the single white. Of double forms there are two blue ones, marked "No. 1" and "No. 2," and the double red. There are also the North American single white, one named *alba cœrulea*, described as white, delicately tinged with blue; *alba major*, large single white; *alba rosea*, white, tinged with pale rose, lovely.

Then we have one named *triloba* "Beauty," which from the description one would think would answer to "R. P. B.'s" "argentrive" or ash-coloured one. It is said to have silvery grey flowers and marbled leaves. This is followed by *triloba cœrulea*, which we are told is quite distinct from the single blue European form with its variety *pallida* "pale cœrulean blue." This, again, has a major form with larger flowers. We are also offered *cœrulea purpurea*, pale blue tinged with red. Lilacs are also included as we see from *triloba lilacina* with "lilac" flowers, and *lilacina pallida*, pale lilac. *Rosea delicata*, very pale blush shading to white; *rosea pallida*, pale rose; and *rosea splendens*, bright rosy crimson, conclude a long list which must include flowers tempting to fanciers of these old-fashioned and bright plants. Possibly enough there may be very little difference between some of the shades. The plants are offered by a reputable nursery which, to my knowledge, has an almost unique stock of alpine flowers. It is not my duty, however, to name the place. The advertising columns of the Journal are the proper medium for the owner, but a recital of the varieties to be obtained in commerce may be of value to some.

SAXIFRAGA BURSERIANA.

The ordinary form of *Saxifraga Burseriana* is now in flower, and very pretty it is with its spiny tufts of grey foliage surmounted by the crimson buds or white flowers visible at this season. It is unfortunate that it is not easily grown into large masses on account of its liability to die off on becoming a plant only a few inches across. It may be kept a little longer, and may be grown into a larger plant by mixing a little peaty soil and sand together and working them carefully among the rosettes of the plant immediately after it has flowered. It is well, though, to propagate fresh plants occasionally. This may be done by taking off small pieces and planting them by themselves on the rockery, or by placing them in pots of sandy peat surfaced with sand, which can be put in a frame or cold greenhouse. The varieties of this pretty little *Saxifraga* tend to increase, as besides the ordinary form there are two varieties passing under the name of *S. Burseriana* major, and seed is now offered as *S. B. biflora*. I have seen nothing of the last, so cannot say anything about its merits.

SOLDANELLAS.

Some of the *Soldanellas* do not flower well unless covered with glass from about October to February, or March; but now that the flower

stems are showing well above the plants the glass may be removed. These little plants like a rather moist position in peaty soil. They are not very often seen in gardens, but usually please everyone with their pretty bell-like fringed flowers. The *Soldanellas* are quite hardy and will flower among the snow, but the glass seems to be needed to induce them to flower. Our comparatively sunless winters appear to be unfavourable to their flowering.

CROCUS BIFLORUS ARGENTEUS.

Are there many who know this variety of the "Scotch" Crocus? I question if there are. It is described as "snow white," and nothing can be nearer in the way of telling in words the peculiar white of the flower. There seems just a sufficient addition of a tincture of blue to give the blooms the glittering coldness of look given by snow. Not that one is affected the same way as if we looked on a cold-giving material, but it is almost marvellous how nearly the effect of snow is produced without the actual sensation. Then the effect is heightened by the bright orange colour of the anthers and stigmata, and it is possibly the warm colour of these which deprives the flowers of the coldness of their snow-like petals. The ordinary *C. biflorus* looks almost ivory-white when placed beside *C. biflorus argenteus*.

HARDY CYCLAMENS.

Judging from the columns of the gardening press, the hardy Sowbreads are likely to be a little better appreciated than hitherto. In "Brief Notes" one cannot enter into much detail about them, but a few lines may with advantage be devoted to mentioning the few really hardy species. The earliest of these is *C. Coum*, a long known little species with round leaves and small crimson or white flowers. The next is *C. Atkinsi*, which, for anything definitely known about it, may either be descended from *C. Coum*, or be a hybrid of that species and *C. ibericum*. It may be had in various shades of red or white. Both of these flower very early. Coming in July, or at times later, is *C. europæum*, another little round-leaved species, varying from pink to carmine. This does not usually do so well in British gardens, and probably wants a little more shade than it generally receives.

Then comes *C. neapolitanum*, whose flowers come before the leaves, and are also of various shades. The leaves of this are very prettily marbled, and are very ornamental all through winter. It is quite hardy, but, like the others, prefers some shade. Young plants, or plants in pots, are the best to purchase, and the crown of the tuber ought to be put an inch or, better still, 2 or 3 inches below the surface. A rather free soil is better than a stiff one, and some plant with success in grass under deciduous trees.—ALPINUS.

THE DAISY PEA.

THE provision of a constant supply of Peas of the best quality throughout the summer months is an item of work with which every gardener has to reckon. It sounds a comparatively easy thing to do with the dozens of excellent varieties now in commerce, and from which the grower has to make a selection. As a matter of fact, there are far too many Peas, some of them introduced as distinct fixed novelties, which are only selections from old ones, that after a season revert to the parental type. It would be advantageous if the list were curtailed, and no matter how hard it had to be compressed Daisy would of necessity remain.

It is beyond a doubt one of the finest dwarf early Marrowfat Peas in cultivation, and it is one that ought to be grown in every garden whose owner appreciates Peas. Sturdy and branching habit, requiring no stakes, coming early and remaining late in profitable productiveness, giving green peas of considerable size and of best quality, it is one of the very front rank. Like many other splendid Peas, it was put on the market by Messrs. J. Carter & Co. of High Holborn, to whom we are indebted for the photographic illustration given in fig. 48.

WINTER FLOWERS AT DE WALDEN HOUSE.

AT this the princely Eastbourne residence of Lady Howard de Walden gardening is carried out in a spirited manner, as this much-respected lady takes great interest in the garden. She is well supported by Mr. J. Simmons, her head gardener, whose ambition seems to be the provision of agreeable surprises in the way of floral displays at all seasons of the year.

Many houses have been recently erected, and a fine spectacle presents itself in the show houses—Primulas, Cyclamens, Cinerarias, Pelargoniums, Azaleas mollis and indica. Lilacs are grown in numbers for this work, and are arranged in groups of about fifty of a kind, intermixed with foliage plants, and is a pleasing and novel display. Good but neglected plants, such as *Strobilanthes* (Goldfussia) *anisophylla*, *Manettia bicolor*, and *Centropogon Lucianus* are well grown. The former, with its lilac flowers, is very pretty. *Manettias* are grown on pyramid-trained frames about a foot high, and are a mass of attractive scarlet and orange flowers—a grand plant for decoration work as seen here. *Centropogon*, with bright rosy scarlet sprays six and seven to the plant, are most graceful and attractive also.

The stove plant houses contain a not over-large, but a clean collection of useful flowering and foliage plants. Conspicuous amongst the former *Anthurium Scherzerianum* is flowering freely, while Palms and well coloured *Dracenas* and *Crotons* are evidences of high-class culture in the

foliage sections. There is also a good collection of hardwooded *Ericas* of all the leading kinds, seldom now grown, but great favourites of her ladyship. Some of them are 3 feet through, and represent all the leading and popular kinds. Azaleas look well, and promise a brilliant show later on.

The various fruit houses show signs of activity. Peaches well in bloom, Vines breaking well. Forced Strawberries are a special feature, and fine crops of forced Beans are noticeable. A plant not often seen is *Sonchus laciniatus*, of a slender *Aralia*-like habit. Several are grown

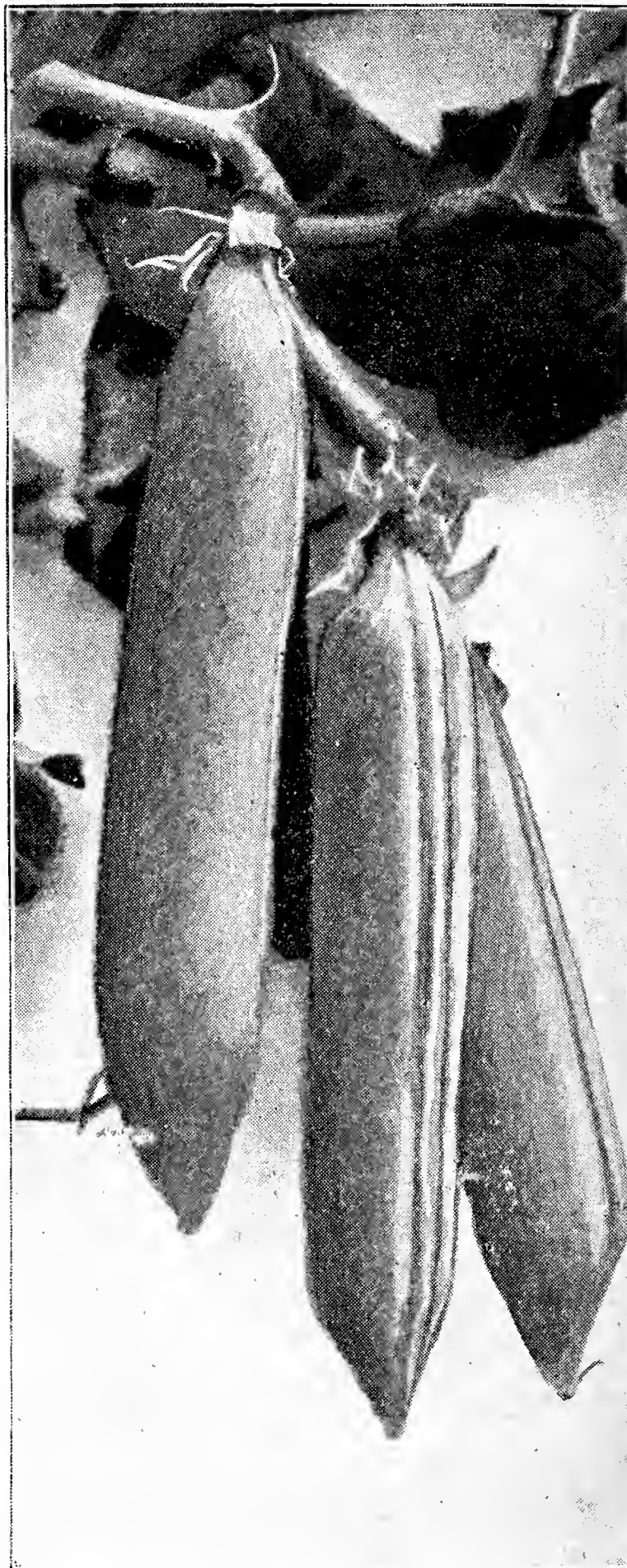


FIG. 48.—PEA, CARTER'S DAISY.

here, standing upon pots, and are beautiful objects, the lacinated leaves hang gracefully even over the pots. Some of the specimens are fully 2 feet high. The grounds are well kept. Every corner and nook seems to be utilised, and planted with something of interest suitable for the various positions. The same may be said of the walls and fences, the object being to turn everything possible into use for either foliage or flowering plants. The place inside and out is a model of cleanliness, while practical skill is evident in every department, the credit of which is due to Mr. Simmons, who has had the entire charge since the formation of this interesting garden.—URBANUS.

STOCK FOR TREE PÆONY.

THE stock used for Tree Pæony (if stock it can be termed) is generally the root of the common red Pæony (*P. officinalis*). It is usually done in the following way:—A plant is taken up bodily, and all the strong roots are selected, or as many as are required. All the small fibrous roots are preserved. Scions of the tree variety are selected, which should be those which bore no flowers the preceding season if possible, although this is not absolutely necessary. These scions are cut wedge shape. The root is also split, and the scion is thrust in exactly in the same way as an Apple or other trees are grafted.

The root is now placed in a pot sufficiently large to accommodate it comfortably, and plunged in a bottom heat of about 70°. It should be plunged over the union; cocoa-nut fibre refuse is the best material. There are two seasons at which this can be done—viz., August and January. If left till January care should be taken that it is done before the scions start into growth. Of course Mr. Bardney is aware that these plants start very early in the new year. I should, however, recommend August for this work.

A second and a much better way in every respect is layering, but one must have large plants before this can be done, and as these plants are of slow growth one must be prepared to wait for some years before any of the tree varieties can be increased in this way.

I have plants both grafted in the way described and from layers. Those on their own roots are the best in every way. These Tree Pæonies are great favourites in many other gardens, and we are planting many of them of the best kinds; but we must have patience to see them at their best—viz., from 5 to 6 feet high. I saw a plant of a good variety of about this height and as much through in full flower two or three years ago, and it was gorgeous.

The reason the old officinalis is commonly used is owing to its vigour. I trust this will meet Mr. Bardney's desire; he will, however, find the raising of these plants rather tedious work.—T. A.

YOUNG GARDENERS' EXAMINATIONS.

ON page 144 of the *Journal of Horticulture* a letter appears signed "Novice," in which reference is made to our laboratories, and an anxiety expressed for information bearing upon the character of the practical work done in our Essex County School of Horticulture. I have much pleasure in giving your correspondent the following brief particulars.

The school is held in the Biological Laboratory of the Essex County Council, and at present consists of four terms in the year—three being devoted to duplicate elementary courses and one to an advanced course. The elementary courses run three weeks each, while the advanced course is extended to a month. Attached to the laboratory is a greenhouse for demonstration purposes, and a small botanic garden. About ten minutes' walk from the laboratory is a 3-acre garden, for demonstration and individual practice. The students are all scholarship pupils, ranging in age from fourteen to twenty-five, and in almost every case are drawn direct from gardens, this latter condition being the very essence of our system.

The pupils attend a botanical lecture every morning from nine to ten, after which they verify the facts of the lecture from ten to twelve by actual laboratory work with microscopes under the direction and assistance of the lecturer on biology and his demonstrator. From twelve to one is the dinner hour. From one to four the pupils are in greenhouse, potting shed, or garden under the charge of the staff horticulturist, who demonstrates approved methods of culture and superintends the individual work of the pupils. From four to six is tea and recreation. From six to seven the students attend a lecture dealing with the horticultural processes of the afternoon or next day, while from seven to half-past eight is reading and private study under supervision and assistance. The whole course of instruction is intended to impart sound elementary instruction in the best methods of cultural treatment based upon a knowledge of the structure and physiology of plants.

With respect to the "wonder" expressed by "Novice" I certainly think that our students could easily compete with any other young fellows of their own age in actual garden work such as is mentioned by your correspondent. Perhaps "Novice" would like to visit our school and see us at work. We have an elementary course running from March 22nd to April 10th, and should he care to accept this invitation I will be delighted to meet him. I enclose a prospectus and time table of the ensuing spring course.—DAVID HOUSTON, *Staff Biologist, Essex County Council*.

THE YOUNG GARDENERS' DOMAIN.

STREPTOCARPUS.

THIS is one of our most useful greenhouse plants. Some of the new hybrid varieties are exceedingly attractive, also varied in colour, and the plants are of easy culture. They thrive well in a rich compost of loam, leaf soil, and decayed manure, with a little sharp sand added, and like plenty of drainage, as they are not deep-rooting plants.

They should be potted in the early spring and placed in a warm greenhouse, where they soon commence growing and flowering freely, and will continue through the summer months without a break. As the spring advances they require shading, as they are unable to stand hot sun. The free use of the syringe between the pots is also helpful, as they enjoy a damp cool atmosphere. As the summer advances a little feeding is very beneficial, and after the flowering season is over water

should be reduced and the plants kept a little dryer during the winter months.

They can be raised from seeds and increased by division. Seed sown early in February in shallow pans of light soil in a brisk bottom heat will soon germinate. When the seedlings are large enough place them singly in thumb pots filled with light soil, keeping the plants in brisk heat till they become well established, and they will flower by mid-summer.

Their worst enemy is mealy bug, and the leaves being so pubescent it is difficult to get rid of. The best remedy is careful washing with a stiff brush and the application of some approved insecticide, care being taken that the wash is not allowed to run down to the roots. Green fly is also troublesome, but can be got rid of with a little fumigation.—A. C. W., *Balcarres*.

THE CULTURE OF ARUMS.

THESE stately favourites for conservatory decoration or cutting may be treated in various ways, but after several experiments I have found the following method answer best. Potting should be done about the end of August to allow the plants to get established before being housed. I have found 10-inch pots suitable and convenient; these should have one crock for drainage, covered with rough leaves or litter to the extent of about 2 inches. This is quite sufficient, as the plants need a considerable amount of water when established.

Our compost consists of three parts heavy loam with one part horse droppings prepared as for a Mushroom bed, the whole passed through an inch riddle. To this may be added a 5-inch potful of Thomson's Vine manure or Clay's fertiliser to every barrowload of soil. Four crowns are sufficient to fill a 10-inch pot. Any smaller crowns may be placed in 5 or 6-inch pots, and grown to increase the stock should this be required, or to replace any that go wrong by accident or otherwise. They require potting firmly.

Towards the beginning of October place the plants under glass in a night temperature of not less than 45°, or more than 50°, increasing this to an extra 5° in November. This temperature will bring them on to follow Chrysanthemums, and afford spathes to cut for Christmas. The leaves require sponging occasionally to keep down fly, but the plants should not be syringed, as this is apt to discolour the flowers.

Constant feeding must be resorted to as soon as the plants are housed, and liquids are preferable, as they act much quicker than solids. Liquid manure from stables and soot water, with an occasional application of sulphate of ammonia, I have found to give the best results; the sulphate to be used to the extent of about 1 oz. to every 2 gallons of water. Under this treatment a constant supply of splendid spathes can be maintained until the end of April without detriment to the plants. A rest of about six weeks after Christmas gives extra vigour to the plants for Easter flowering.

The early part of May is the best time for turning them out of doors again, planting in a trench with a fair dressing of manure and mulching with rough straw. Keep the roots well watered all the summer, and you will build up strong plants to commence with another autumn. Under this treatment we have at present flowers fully 9 inches across with foliage of a dark green colour. The plants are continually throwing up flowers of the purest white.—GAECON.

THE STRAWBERRY.

(Continued from page 145.)

As the plants are required for forcing choose the earliest varieties and those having the most prominent crowns. Examine the drainage, making it clear if required. Remove all dead leaves, and wash the pots before housing. Some growers advise plunging the plants in a hotbed made of leaves and short litter. This is advisable where practicable, as it causes quicker root action, and the plants are better able to stand hard forcing. Where there is no space at command for plunging them, nor house especially adapted for their culture, shelves in vineries or Peach houses near the glass are suitable. The plants may be taken there as the houses are started, the gradual rise of the temperature for the Vines or trees suiting them very well.

Where a house is set apart especially for Strawberries start with a temperature of 45° to 50° by night and 55° by day. Little water will be required at first; but each pot should be examined every morning, and those requiring water should receive a sufficient supply to pass to the drainage. When the flower spikes show an occasional application of liquid manure aids the plants to develop strong, bold spikes. As the flowers commence opening raise the temperature to 55° by night and 60° by day, ventilating freely, yet judiciously, avoiding draughts. Distribute the pollen either by shaking the flowers or by a camel-hair brush. When fruits have set freely and are swelling, thin to a reasonable number on each plant. Increase the temperature to 60° by night and 65° to 70° by day, admitting air on all favourable occasions, closing the house early. Syringe freely, and afford liquid manure until the fruits colour.

Should mildew appear dust the leaves with sulphur. Green fly or thrips may be eradicated by fumigation. When the fruit commences colouring cease the liquid manure and gradually decrease the supply of water. At the same time admit more air, as if grown close the fruit would be flavourless. Those colouring in vineries or Peach houses which are being forced should be taken to a more airy place for the same reason. When nearly ripe abundance of air should be given, and very little water will be required. Do not allow them to lose colour before gathering. Good results may be obtained from the following varieties:—La Grosse Sucrée, John Ruskin, Royal Sovereign, President, Auguste Nicaise, Lucas, and Waterloo.—SEMPER.

ADIANTUM CUNEATUM.

ONE of the most useful foliage plants is, I think, the Maidenhair Fern (*Adiantum cuneatum*). Whether they are used in combination with other plants, or in a house devoted entirely to them, they afford a pleasing effect. Their delicate fronds in their developing or mature state demands our admiration. Valuable as they are for the above purposes, they are equally useful for vase and buttonhole work, an advantage beyond many others. What flower is not enhanced in beauty by the addition of one of their fronds? The plants are very useful for placing round the base of large Palms for house decoration; a large number being grown exclusively for this purpose, varying in size according to size of Palm. They also add to the beauty of deciduous Orchids, such as *Calanthes*, when intermixed with them.

The culture of the *Adiantum cuneatum* is comparatively easy, provided we have healthy plants to start with. The most important item I have noticed with them is that they object to being overpotted, and, considering they benefit by an occasional watering with liquid manure; overpotting should be guarded against. They prefer clean to dirty pots, effectively drained with potsherds and charcoal. It is a good plan to place a piece of perforated zinc over the hole before placing in the crocks, as this prevents woodlice and slugs—two of the worst enemies of this Fern—from hiding among the drainage till a favourable opportunity offers for them to feed on the tender fronds.

The compost we find the most suitable is a mixture of good fibry loam and well-decayed leaf mould in equal parts, with a moderate addition of sand. The soil should be made firm, as this tends to make the fronds more hardy, thus causing them to last longer, especially after being picked. The pots should not be filled too full, judgment determining this according to size of pot, as they require copious supplies of water while growing.

In the case of increasing stock we find it best to employ sporelings, as by cutting through old stools the roots are often very much injured, and sometimes they are entirely destroyed on the cut side. This often causes the plant to grow and increase on one side only, which looks very unsightly.—ASPIRANT.



HARDY FRUIT GARDEN.

Strawberries.—*Young Plantations.*—Quarters of young plants established early or late in the previous autumn will now be benefited by stirring the soil between the rows of plants. In soil of a stiff retentive character, or any that has become more or less consolidated owing to the wet, the loosening will be best done with a fork. Where a Dutch hoe will pass readily through the soil this is the best implement, because the soil does not necessarily require moving deeply, especially near the plants. The object of hoeing is to destroy and keep down weeds. Further than this, a loose, shallow, open surface is very beneficial to young plants as it accelerates their growth, inasmuch as the soil is warmed and the oxygen of the air admitted. The crumbly layer of dry soil thus formed also prevents rapid evaporation of moisture, a matter of importance in a dry spring and early summer. In a wet season, too, hoeing is of advantage during the dry periods which may follow the moist—that is, when the soil becomes caked on the surface. Any plants that have become loosened during the winter should be made firm.

Old Plantations.—If a manurial mulch were not applied to these in autumn a dressing now is really desirable for enriching the soil and strengthening the growth. A dressing of soot may first be given, scattering it round the plants, not actually over the crowns. A peck of soot to a rod will both be useful as a manure and as a destroyer of slugs, which invariably lurk about the crowns of the plants. In all cases strong weeds should be forked out. These include Dandelions, Docks, Couch Grass, Nettles, and Bindweed, all of which have perennial roots, and though the tops may be cut down further growth is soon made. Annual weeds, as groundsel and chickweed, are soon destroyed in dry weather after being cut down.

The manure applied must be rich and moist decomposed farmyard manure. Strawberries well manured in autumn with similar material do not require a mulching of the same character now, but one of fresh littery manure. The solid parts of this afford some nutriment, and the straw or litter becomes bleached or washed, by which a clean bed is secured for the fruit to rest upon when ripe.

Applying Artificial Manures.—It is only old or established beds in bearing that need assistance with chemical or artificial manures. With young plants stimulating manures are more likely to cause superabundant growth of foliage when the plants are not in bearing to check this disposition. A mixture of artificials, comprising important elements of plant food likely to be deficient in the soil, are the most advantageous. Nitrogen, phosphoric acid, and potash are usually required to be added oftener than other elements also essential, but generally present in all fertile soils. A fertiliser compounded of the following is good for Strawberries requiring additional help:—2 lbs. each nitrate of soda, sulphate of ammonia, and potash, with 4 lbs.

mineral phosphate. This would be sufficient for a rod of ground. Crush the salts quite fine, and mix the whole compound with some dry earth. This will insure the mixture being distributed evenly. Nitrate of soda alone is a useful manure in spring for Strawberries, because it affords direct and special food to plants at a time when they find difficulty in obtaining it from the soil owing to the conditions for supplying nitrogen in the form of nitrates not being sufficiently present in the soil at this season. Nitrate of soda, crushed very fine and mixed with soil, may be applied at the rate of 1½ to 2 lbs. per rod.

New Plantations.—Plants placed in nursery beds in autumn to form more roots and increase in size before finally planting may now be transferred to permanent quarters. The winter season has afforded an opportunity to prepare the soil thoroughly. Strawberries require rich, deep, firm soil. Before planting the essential conditions for encouraging free strong growth should be studied, adopting the best means for improving the soil in order that it may remain in fairly good heart for at least three years, the usual period Strawberries remain profitable. They succeed well if planted on freshly dug and manured ground, but it is advisable on light soils to firm the ground well before planting, selecting a dry period for the work of compression, which may be carried out by treading or rolling.

Plants from nursery beds ought to be carefully lifted with as much soil adhering to the roots as possible, and placed a little deeper in the ground than before. Avoid crushing the tips of fibrous roots into holes too small, but place so that they may be able to extend freely. More care, however, is required with plants having no adhering soil. The roots should be spread out on little mounds of soil, carefully covering with fine material spread over them from the crowns outwards. Press the soil firmly and equally about them when the roots are covered, levelling the remaining soil with the spade.

The distance between the rows of plants is governed by the habit of the variety planted. Strong growers, like Sir J. Paxton, James Veitch, and Noble, need the rows to be 30 inches apart, the plants 20 to 22 inches asunder in the rows. Two feet between the rows is the best distance for the majority of varieties of medium growth, the plants 18 inches asunder. Smaller growers of the type of Vicomtesse Hericart de Thury may be 15 inches from plant to plant in the rows, the latter 2 feet asunder, which is more convenient than narrower rows.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest Forced House.*—Where Alexander or Waterloo, Early Beatrice and Early Louise Peaches, with Cardinal and Early Rivers Nectarines are grown, either in pots or planted out, the fruit will soon have completed the stoning, and will advance rapidly to ripening if duly supplied with nourishment and the trees are not overburdened with fruit. This swells and ripens under the same conditions as are required by the older second early and midseason varieties whilst stoning. The temperature then requires to be kept as equable as possible, too much heat at night being unfavourable to the fruit, and cold draughts in the daytime often giving a check that causes it to fall. This must be avoided by judicious early ventilation made up for by closing early in the afternoon; but cutting winds are so pernicious as to bring off the fruit wholesale, and drying the atmosphere by over-fumigation is equally disastrous. Continue the temperature at 60° to 65° at night and 70° to 75° through the day, syringing morning and afternoon to keep red spider in subjection, but promptly eradicate it by an insecticide if it gains a footing. Thin the fruit directly the stoning is effected to the number required for the crop. It is not wise to let the trees stone twice as many fruit as are required, and it often happens that leaving too many brings off the major portion. One fruit to a foot of trellis is ample for the large-fruited varieties; medium-sized fruited sorts and Nectarines may be left a little closer. Tie the shoots to the trellis as they advance, and stop any growing too long at 12 to 15 inches, pinching laterals to one leaf, and, above all things, avoid overcrowding. Shoots retained to attract the sap to the fruit should be closely pinched to one leaf unless the trees are weak and it is desirable to encourage root action by a little extension, yet do not allow more growth than there is room for.

Succession Houses.—Disbudding and tying-in must be attended to before the shoots become too long, disbudding gradually. If the blossoms have set thickly—more than a dozen on a length of 1 foot of shoot—thin them soon after the remainder of the blossoms are cast, removing the smallest fruits, those on the under side of the branches and the badly placed, leaving about three of the best. These in turn should be reduced to two or one when the size of marbles, or not later than as large as Walnuts. The temperature may be raised to 55° to 60° at night, and 60° to 65° by day from fire heat, ventilating from 65°, and insuring 75° from sun heat, closing moderately early in the afternoon, but avoid a close atmosphere.

Late Houses.—With the buds swelling a light syringing occasionally may be indulged in until the stamens appear, when the floors and borders may be damped instead in the morning and afternoon, leaving a little air on constantly, and employing fire heat only to exclude frost. After the flowers open maintain a night temperature of 40° to 45°, 50° by day in dull weather, 5° more when mild, with a free circulation of air, advancing to 65° with sun. Where the blossom is superabundant it will be advisable, especially in the case of weakly trees, to remove the flowers from the under side or back of the shoots, as the trees may be against front or back trellises. The borders must not lack moisture, affording thorough supplies where needed, repeating, if necessary, so as to bring them into a thoroughly moist state, but avoid making the soil sodden.

Vines.—Eyes.—When those inserted as advised are well rooted they should be potted singly, or, if inserted in small pots, shifted into 6-inch pots as soon as the roots reach the sides of the smaller, placing them on shelves over the hot-water pipes. Syringe well amongst them, and pinch laterals at the first leaf, unless they are intended to be planted out this season and not fruited the next, when the laterals may be left entire, but in that case the Vines must be planted before the roots become matted.

Cut-back.—For fruiting in pots next season these Vines will now be fit for shaking out and repotting, or if that has already been done, and the roots have reached the sides of the pots, they will need shifting into the fruiting, 12-inch, pots. If they have been given bottom heat they should be returned to it for a time, 75° to 80° being sufficient, otherwise bottom heat is not necessary, yet the pots are better stood on slates over hot-water pipes than on a cool bottom. Keep the house close and moderately moist until they become established. Train the canes near the glass, pinching the laterals to one leaf, and thus secure solidified and plump buds. Use clean pots and efficient drainage. Turfy loam with a fifth of old mortar rubbish answers well for potting, but a pint each of steamed bonemeal and soot, and double quantity of wood ashes may be mixed with every bushel of soil.

Earliest in Pots.—Canes started last November have the Grapes in the last stages of swelling, and must be adequately supported with liquid manure and rich dressing, while if the roots extend beyond the pots feed them there as well as in the pots. The very early varieties, such as White Frontignan, Foster's Seedling, Black Hamburgh, and Madresfield Court, are well advanced towards ripening, and will need clean tepid water after the colour is well pronounced. A circulation of warm moderately dry air conduces to the colour and flavour of the fruit, but the Vines must not lack the needful supplies of water to keep the foliage fresh, or the atmosphere be allowed to become so parched as to invite red spider, for the Grapes require some little time to mature after being apparently ripe, and a moderate amount of atmospheric moisture without stagnation is essential to their remaining plump and fresh until cut.

Early Houses.—Vines started early in December and previously forced will have the Grapes stoned, and should have copious supplies of liquid manure or a top-dressing of an approved fertiliser washed in. A light mulching of lumpy, partially decayed manure may be placed on the border, as the Grapes swell considerably in the later stages, even after commencing to colour, and allow a little lateral extension, as every leaf encourages root action, and that leaf duly exposed to light and air aids the Grapes in swelling and finishing. The Vines started later in the year, and of which the berries have been thinned, will need liquid manure applied to inside borders; but surface dressings are more potent in accelerating and keeping surface roots, and a good handful of almost any of the advertised fertilisers per square yard makes a wonderful difference in the colour of the foliage, which means ultimately good colour and high finish in the Grapes. Ventilation needs to be carefully attended to, as with sharp winds and bright gleams of sun the temperature is subject to sudden alternations, which must be avoided by admitting air in small quantities at a time, always in advance of rather than after a great rise of temperature, taking care to allow a good rise from sun heat after closing early in the afternoon at 80° to 85°, allowing the temperature to fall to 65° at night, or even 60° when very cold.

Vines started in January and not forced before have pushed slowly, and some that have started freely show a tendency in the bunches to twist and curl, whilst others are "blind." This may be a consequence of unripe wood and imperfectly formed embryonic bunches. Nothing can be done in such cases, but a slight increase of temperature and a reduced supply of moisture may be beneficial. Avoid the close-stopping system until every part of the trellis is well covered with foliage, then allow no more than there is room for. Vines started with the year will be in flower, and should have a rather drier atmosphere with a gentle circulation of air and a temperature of 65° to 70° at night and 70° to 75° in the daytime, with 10° to 15° rise from sun heat, maintaining moderate moisture by damping the house two or three times a day in bright weather. Muscats should have at least 5° higher temperature, and the flowers must be carefully fertilised.

Succession Houses.—Disbud and secure the growths as they advance, stopping them two joints beyond the bunches where the space is limited, but where there is room allow a greater extension of the shoots before stopping them. Remove the laterals from the joints below the show for fruit, except from the two base leaves, stopping those at the first leaf and to one afterwards as produced. The laterals above the fruit may be allowed to make such growth as can have full exposure to light without crowding, and then be stopped, keeping them pinched afterwards as in the case of those not having room for extension. Remove all superfluous and ill-formed bunches of the free-setting varieties as soon as those that are the most promising for the crop can be selected. Maintain the borders in a proper state of moisture, and secure a genial atmosphere by damping the house well at closing time as well as in the morning and evening. A temperature of 60° to 65° at night is suitable after the Vines come into leaf, allowing 65° to 70° on dull days and 75° to 80° with sun and ventilation, taking care to ventilate early, to avoid cold draughts, and to close early.

Late Houses.—Vines to afford ripe Grapes in August onwards must be started, and Muscats, with other varieties, should be encouraged to move, as the fruit keeps much better when ripened in August or early in September than when the season is more advanced at the ripening period. Vines which have only been recently pruned should be given a little rest before starting them, yet all thick-skinned varieties should

be started not later than early in April, for they take a long time to ripen properly for keeping, and should be assisted all along with fire heat, as upon their thorough ripening depends the Grapes keeping sound. Inside borders may be brought into a thorough state of moisture by the application of water, and if followed by an application of rather thick, but not too strong, liquid manure, it will excite root activity as well as nourish the Vines. Outside borders will only need a little partially decayed manure as a mulch to protect the roots from chill by frost or snow. The atmosphere must be kept genial, sprinkling the rods and every surface about the house two or three times a day, maintaining a temperature of 50° at night or 55° when mild, and 65° by day with sun. Late Hamburgh houses may be kept cool, not starting the Vines until next month—indeed, they may be allowed to push naturally. It will suffice if they have the fruit set by early in June, and the Grapes are ripe in September.

THE BEE-KEEPER.

SEASONABLE NOTES.

THE weather, which is an important factor in connection with the pastime of bee-keeping, has been very changeable since the commencement of the new year. During the early days of February there was a deluge of rain, followed by a few bright days, which allowed the bees to have a good cleansing flight. Then more snow and rain, accompanied by high winds, which have continued with more or less severity to the present time.

The temperature has not been extremely low, as on no occasion was there more than 10° of frost registered. The bees, however, derived great benefit from the few sunny days; but as the ground was covered with snow on two or three occasions many bees were lost owing to alighting on the snow and becoming chilled. The mischief arising from this cause has not been so serious as in some previous years. It is an advantage to shade the entrance of hives during spells of bright sunshine in early spring when the ground is covered with snow. The bees will then remain in their hives instead of being tempted out in their thousands, many of them never to return again.

The genial weather enabled the bee-keeper to make a partial overhaul of his stocks, and in doing so several instances were found of the penetrating power of snow. If there is a weak place in the roof or sides of hive which to all appearance is rain proof, if examined after a heavy snowstorm the interior of the hive and floor-board will be often found to be saturated; but if the snow is cleared off the hive before it thaws there will be less danger of its penetrating through the crevices.

In my own apiary several of the floor-boards were damp, these were replaced with dry boards, which shows the advantage of having loose floor boards, by the ready manner in which they may be removed without disturbing the bees, as at this season there is always an accumulation of dirt from the cappings which the bees are unable to remove during the winter months, and if allowed to remain in the hive will cause the floor to become damp and mouldy. The wax moth, too, which is so detrimental to combs, will breed in the *débris*.

QUEENLESSNESS.

At this season more than any other stocks are often found without a queen. This arises from a variety of causes, but the chief one is in having old worn out queens. During the past few days I have been consulted as to the loss of four colonies by as many bee-keepers, and in each case I am convinced the above was the cause. In two instances the bees were in straw skeps, and had been first swarms for two years in succession. Young queens had not been raised or introduced. The old queen having become decrepit and worn out from old age would in all probability be turned out of the hive by the workers when it was too late to raise a young queen. The bees remaining in the hive would rapidly dwindle away, and the first spell of severe weather would kill them.

The winter is then blamed for the mishap, whereas it was the management that was at fault. The other case that came under my notice was somewhat different, although the cause and result were the same. The bees in this instance were kept in frame hives, which had not swarmed for two years owing to extra space being provided for them in working sections. Had young queens been given to them after the removal of sections in the autumn they would now without doubt have been strong prosperous colonies, as they were well provided with stores. This is a fact that should be constantly kept in mind by bee-keepers—the necessity of raising young queens, as in a general way it is not wise to keep queens after they are two years old. The old queen may be removed and a young one introduced at any time except midwinter, as advocated.

in these pages. It being such a simple matter, and not nearly so difficult as many people imagine, it should not be neglected.

UNITING WEAK COLONIES.

Stocks that are queenless and the workers still alive should be united to other colonies without delay. If the two stocks are separated several yards apart remove them a few feet nearer each other every day the bees are on the wing. On the evening of the day in which the bees are brought into close proximity remove all empty frames from the hive containing the queen, separate the other combs, and sprinkle the bees with flour. Go through the same process with the queenless colony, and place the frames with the adhering bees alternately with those in the other hive, cover them up warm, and if short of stores a bottle of warm syrup may be given to them, and success will follow, as the colony will be strengthened by the added bees. The entrance should be reduced to half an inch; this will prevent robbers from gaining an entrance.

It is quite easy for one who is used to bees to tell if the stock is queenless by observing them when the sun is shining in the middle of the day at this season. In those hives that have an active fertile queen the bees will be seen darting in all directions in search of pollen, but those having no queen will remain about the entrance to their hive in a languid kind of manner. When this is observed steps should at once be taken to examine the stock, and if the queen cannot be found treat them as advised above. Robbers, too, will soon find out those stocks in which the bees are dead or so weak that they cannot protect themselves against intruders.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

H. Cannell & Sons, Swanley.—*Floral Guide*.
Cooper, Taber & Co., Ltd., 90, Southwark Street.—*Wholesale List of Farm Seeds*.
E. P. Dixon & Sons, Hull.—*Farm Seeds*.
Ellwanger & Barry, Mount Rose Nurseries, Rochester, N.Y.—*General Catalogue*.
Kent & Brydon, Darlington.—*Farm Seeds*.



* All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed personally to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Mustard and Cress in Punnets (H. H. S.).—The Mustard and Cress as sold in punnets in London is not "produced" in them, but grown in houses and frames according to the season of the year, and packed in the punnets quickly and neatly as the produce is cut. No doubt it could be grown in punnets, but would not be likely to pay so well as by the ordinary routine.

Caterpillar Found in Garden (H. L.).—The "caterpillar" is the larva of a beetle belonging to the family Telephoridae, and evidently a "soldier" or red coloured species, probably *Telephorus lividus*, but the "soldiers" and "sailors"—the red and blue—are difficult to distinguish in the larval state. It is carnivorous in mode of life, and does little, if any, harm to vegetation.

Insect Eating Maidenhair Ferns (W. P.).—The insect is the grooved or black vine weevil (*Otiorynchus sulcatus*), and very fine specimens they were, and we soon passed them into oblivion. They are absolutely vegetable feeders, both in the grub and beetle stages, the former feeding on the roots of various plants, being very fond of the fleshy young roots of Vines and Peaches, and, above all things, like the fleshy corms of Cyclamen. Indeed, we do not know what form of root the grubs will not eat that are of a sound sustaining nature. The weevils are very partial to the rising fronds of Adiantums, Vine and Peach leaves, eating holes in the latter, and doing an immense amount of mischief. The best means of riddance is to capture the beetles, looking for them after dark with a lantern, proceeding cautiously, and not forgetting to examine the surface of the soil carefully. On Vines place sheets on the soil in the daytime beneath the Vines, enter the house very cautiously after dark with a shaded lantern, shake the Vines or trees sharply, turn on the light, and collect the skulking beetles into an old tin containing a little petroleum.

Senecio macroglossus (Juvenile).—The Ivy-leaved Senecio is one of the most useful of winter-blooming plants. Winter-flowering plants which will do well on the roofs of greenhouses are not so numerous that so useful a one as this should be neglected. The flowers resemble those of the beautiful and popular yellow Marguerite, *Chrysanthemum Etoile d'Or*, but are of a somewhat lighter yellow or creamy hue. They are produced very freely, and at a time of the year when greenhouse flowers are scarce; hence they are doubly valuable. The leaves, how-



FIG. 49.—SENECIO MACROGLOSSUS.

ever, are as attractive as the blossoms, bright and cheerful as the latter are. They closely resemble those of the small-leaved Ivies; in fact, are difficult to distinguish from them, and are highly ornamental. The plant does best when planted out and trained up the roof of a house; but may also be well grown in a pot. In either case good drainage should be provided, and a compost of light sandy loam with a little leaf soil will be suitable. *Senecio macroglossus* has been neglected too long. Flowers and leaves are represented by the engraving, fig. 49.

Planting Flower Beds (Kewhurst).—The Gladiolus and Asters would not make a good display till late in the season, so they may be put out of our calculations. But among the other plants you name there is plenty of material for making a very effective bed, if disposed in the following manner. Plant in the centre a Cactus Dahlia and two others on each side at a distance of 3 feet from it, so as to form a line running lengthwise with the bed. Next place a string line along the entire length of bed 18 inches from the edge, and opposite each opening between the Dahlias plant three strong clumps of perennial Lobelias in the form of a triangle, two clumps on the inner and one on the outer side of the line. Repeat the operation on the opposite side, then plant a row of Antirrhinums all round the bed, 9 inches from the edge, and fill in the whole of the remaining space with Brompton Stocks. In suggesting this arrangement I presume the Antirrhinums are the dwarf bedding kinds. Should they be the tall growing ones, reverse the position of Stocks and Antirrhinums. In each case an edging of *Pyrethrum laciniatum* will give the bed a finished appearance. It is not yet too late to sow seed to produce the necessary plants for this purpose.

Cinerarias Dying Off (H. B.).—There are many causes of the seedlings dying off when from six to eight weeks old from the seed, the chief being a form of mould, which attacks the plants at the collar, and can only be avoided by keeping them moderately thin, so that air can play freely about them, and being careful not to overwater or keep too close, using shading only to prevent flagging and scorching. The fungus is usually present in the leaf mould, being developed from a sclerotium, and is named *Botrytis cinerea sclerotiphila*, the black sclerotium being once called *Sclerotium durum*; but it is the conidial stage of *Sclerotinia sclerotiorum* (Mass.). It gets hold of the plants because they are potted too deeply, damp setting in and rendering its work easy. In what you mean to sterilise the soil does not appear. We suppose either by treating with boiling water or subjecting to heat. If the latter it is as well not to char it, especially if leaf soil, as that takes most of the nature out of it. The treatment of the loam is a "caution," as you have used the exact proportions bricklayers do in making mortar,

the lime being over 33 per cent. Ten per cent. is a maximum quantity to use, and even then the lime must be the best chalk lime, and the compost allowed to lie for about three months. Of course you can make the percentage what you like by adding loam and leaf mould when preparing the compost, but unless the added ingredients are sterilised what will be the good of the lime treatment? To the heap we should now add eight parts loam, and the leaf mould you intend to use, incorporating thoroughly and leaving till the time required for potting. This will give a good blending of the ingredients, and no doubt form a suitable compost.

Vine Leaves Scorched (*Ignoramus*).—There is no fungoid disease or micro-organism either on or in the tissues, but a slight form of scorching—at least, it appears as such—which is probably owing to the extremely thin texture of the leaves and their sudden exposure to a cold current of air. The growths are very weak, and certainly would have been better for a freer amount of air, especially in the early part of the day. Besides, they appear unfruitful. Could you not improve the condition of the Vines by a judicious use of fertilisers?

Propagating Ficus elastica (*J. J.*).—This extremely useful decorative plant is easily increased by cuttings or eyes having a leaf attached, inserting the cuttings or eyes singly in small pots in sandy loam with a little leaf soil added, letting the base of the cutting rest on a little silver sand and filling the hole with the same, eyes being placed about an inch in the soil. Place in a close frame in a propagating house or one with a stove heat, and keep close, moist, and, if need be, shaded until rooted, then gradually inure to the air of the house and grow on, shifting into larger pots as required; but this plant does not require a large amount of root space, or rather the smaller the pots the more useful the plants as a rule for decorative purposes, very fine plants being had in 6-inch pots or less.

Tomato Troubles (*S. J. A.*).—We have, in accordance with established practice, read your letter, addressed to Mr. Iggulden at this office. It shall be sent to him, and he can answer it privately if he likes (a stamped directed envelope is not enclosed)—not through our columns, as it was not addressed to the Editor; and both his and your attention may be drawn to our desire, published at the head of this column. We note that "a heavy dressing of quicklime" acted with decided benefit against black stripe in one house, and not in another; but where it failed, "it was found on digging in the autumn that it had not been mixed with the soil, but formed a solid layer where it had been dug-in." It is justly due to Mr. Abbey that he be made aware of the manner in which some of his advice is carried out. After inspecting hundreds of thousands of Tomato plants, we are more than ever satisfied that the sounder the principles of cultivation and the more carefully the necessary details in routine are carried out, the greater the immunity of the plants against destruction by their enemies, and we shall be a little surprised if Mr. Iggulden dissents very strongly from this view of the case. If he does it will not alter our opinion.

Ground Infested with Slugs and Snails (*Gardener*).—When land is thoroughly infested with these pests, "so bad indeed that such seedlings as Seakale, Scorzonera, and Onions never come through, as they are all eaten off in the ground," it is difficult to effect a clearance. The best procedure is to give the land a dressing of lime, $1\frac{1}{4}$ cwt. per rod ($30\frac{1}{4}$ square yards), placing the freshly burned best chalk or land lime in small heaps convenient for spreading, slaking, using only just sufficient water to cause it to fall to a fine apparently dry powder, and whilst hot spreading evenly on the surface, pointing in with a fork as soon afterwards as possible, and taking small spits so as to mix evenly. It is best done in a dry time, or when the ground is in good working order, with a prospect of fine weather. The ground need not be stirred deeper than 6 inches, as the lime will get down fast enough. This will permanently improve the land, especially of an old garden or of a heavy nature, and do much towards freeing it of the slugs. In addition to the lime dressing, or if not convenient to use it, which, however, we strongly advise, you may employ the following mixture:—Bone superphosphate, dry and crumbling, $3\frac{1}{2}$ lbs.; kainit, best quality, $3\frac{1}{2}$ lbs.; nitrate of soda, 95 per cent., $1\frac{1}{4}$ lb., mixed, per rod ($30\frac{1}{4}$ square yards), which will give excellent results both as a grub killer, slugicide, and manure; but remember this is a maximum dressing, and meant only for bad cases. It should be applied a few days in advance of sowing or planting, and must not be more than lightly pointed in. We have found it an excellent practice to cover the seed in the drills with wood ashes in a moist state, they having been exposed to the weather so as to become moistened through, and then what is known as bleached. Another very excellent dressing is air-slaked chalk lime and dry soot in equal parts by measure, using $\frac{1}{2}$ lb. per square yard or 15 lbs. per rod, point in with a fork about 6 inches deep, taking small spits and mixing evenly. This acts well both as a manure and pest destroyer.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*A. E.*).—*Stenotaphrum glabrum variegatum*. (*C. P.*).—*Anthericum variegatum*. (*J. H. S.*).—1 and 2, *Dracenas*; these are florists' varieties that can only be named by comparison; 3, *Statice profusa*; 4, possibly a *Diosma*, no flowers; 5, a *Gymnogramma*, send fertile frond; 6, *Franciscea latifolia*.

COVENT GARDEN MARKET.—MARCH 10TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, $\frac{1}{2}$ sieve	1	3	to	2	6	Lemons, oase	11	0	to 14	0	
Filberts and Cobs, per 100lb.	0	0		0	0	Plums, $\frac{1}{2}$ sieve	0	0		0	
Grapes, per lb.	2	0		3	0	St. Michael Pines, each ..	3	0		8	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.	
Asparagus, per 100	0	0	to	0	0	Mustard and Oress, punnet	0	2	to 0	4
Beans, $\frac{1}{2}$ sieve	0	0		0	0	Onions, bushel	3	6		4
Beet, Red, dozen	1	0		0	0	Parsley, dozen bunches ..	2	0		3
Carrots, bunch	0	3		0	4	Parsnips, dozen	1	0		0
Cauliflowers, dozen	2	0		3	0	Potatoes, per cwt.	2	0		4
Celery, bundle	1	0		0	0	Salsafy, bundle	1	0		1
Coleworts, dozen bunches	2	0		4	0	Seakale, per basket	1	6		1
Cucumbers	0	4		0	8	Scorzonera, bundle	1	6		0
Endive, dozen	1	3		1	6	Shallots, per lb.	0	3		0
Herbs, bunch	0	3		0	0	Spinach, pad	0	0		4
Leeks, bunch	0	2		0	0	Sprouts, half sieve	1	6		1
Lettuce, dozen	1	3		0	0	Tomatoes, per lb.	0	4		0
Mushrooms, per lb.	0	6		0	8	Turnips, bunch	0	3		0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (various) doz.	6	0	to	36	0	Ferns (small) per hundred	4	0	to	0	0
Aspidistra, dozen	18	0		36	0	Ficus elastica, each	1	0		7	0
Aspidistra, specimen plant	5	0		10	6	Foliage plants, var. each	1	0		5	0
Azalea, per dozen	18	0		36	0	Genista, per dozen	8	0		10	0
Cinerarias, per dozen ..	8	0		10	0	Hyacinths, large, per dozen	6	0		12	0
Cyclamen, per dozen ..	9	0		18	0	Lily of the Valley, 12 pots	9	0		12	0
Daffodils, per dozen ..	6	0		8	0	" " " in boxes	4	0		6	0
Dracæna, various, dozen ..	12	0		30	0	Lycopodiums, dozen	3	0		6	0
Dracæna viridis, dozen ..	9	0		18	0	Marguerite Daisy, dozen ..	9	0		12	0
Erica, per dozen	9	0		12	0	Myrtles, dozen	6	0		9	0
" hyemalis, per dozen	10	0		15	0	Palms, in var. each	1	0		15	0
Eucalyptus, var., dozen ..	6	0		18	0	" (specimens)	2	0		63	0
Evergreens, in variety						Spiræa, per dozen	6	0		9	0
dozen	4	0		18	0	Tulips, dozen pots	6	0		9	0
Ferns in variety, dozen ..	0	0		19	0	" " in boxes, per dozen	0	8		1	6

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Anemones, dozen bunches..	2	0	to	4	0	Mignonette, dozen bunches	3	0	to 6	0	
Arum Lilies, 12 blooms ..	2	0		4	0	Mimosa (French) per					
Asparagus Fern, per bunch	2	0		3	6	bunch..	1	0		1	6
Azalea, per dozen sprays ..	0	6		1	0	Narciss, White (French),					
Bouvardias, bunch	0	6		0	9	dozen bunches.. . . .	3	6		4	6
Carnations, 12 blooms ..	1	6		3	0	Narciss, Yellow (French),					
Daffodils, double, dozen						dozen bunches	1	0		2	0
bunches	1	6		4	0	Orchids, various, per dozen					
Daffodils, single, dozen						blooms	1	6		12	0
bunches	3	0		8	0	Pelargoniums, 12 bunches	6	0		9	0
Eucharis, dozen	3	6		4	0	Pyrethrum, dozen bunches	1	6		3	0
Gardenias, dozen	4	0		6	0	Roses (indoor), dozen ..	1	0		2	0
Geranium, scarlet, doz.						„ Tea, white, dozen ..	1	0		2	6
bunches	6	0		9	0	„ Yellow, dozen (Nels)	6	0		9	0
Hyacinths (Roman). 12						„ Red, dozen blooms ..	4	0		6	0
sprays, and per bunch ..	0	6		0	9	„ Safrano (English),					
Lilac, White (French), per						dozen..	1	0		2	0
bunch	3	0		5	0	„ Pink, per dozen	3	0		6	0
Lilium longiflorum, 12						Smilax, per bunch	4	0		6	0
blooms	3	0		6	0	Snowdrops, dozen bunches	1	0		2	0
Lily of the Valley, 12sprays,						Tuberose, 12 blooms.. ..	1	0		1	6
per bunch	0	6		1	0	Tulips, dozen blooms.. ..	0	6		1	0
Marguerites, 12 bunches ..	2	0		3	0	Violet Parme, per bunch ..	2	0		3	0
Maidenhair Fern, per dozen						„ per doz. bunches ..	1	6		2	6
bunches	6	0		9	0	„ (French), per dozen					
						bunches	1	0		2	0



REAL OLD CHESHIRE.

DOES it exist now, or is it, like many other good things, only a fancy of the imagination? That we yearly eat a great deal of cheese that never had the slightest acquaintance with a British cow is perfectly certain. We do not for one moment say it is not good cheese, but we do object to paying English prices for a foreign commodity.

Since the commencement of this decade agricultural affairs have assumed a very black outlook. Nothing that the farmer grew or reared could be disposed of so as to leave a margin of profit, but still from one small western county the cry of depression had not been raised. Cheshire, with her fine dairy land and her name for world-famed cheese, held her own; but, alas! on Cheshire farmers at last the storm has broken, and the years of 1895 and 1896 will be accounted as years of great disaster. When things are at the worst the proverb says they mend, but now-a-days we hardly know when we have reached the lowest depths. Whitchurch in Cheshire has a noted cheese fair—or as it is locally called a cheese "pitch"; here the cheese is sold wholesale to the factors, who in their turn supply the shops and warehouses.

The value of Cheshire cheese retail ranges from 9d. to 1s. per lb.; the value of the same cheese wholesale this autumn was from 46s. per cwt. to 20s. per cwt. Someone gets an enormous profit, but it is certainly not the maker.

A dry season in old days caused a certain rise in the value of cheese, and the maker was sure of a fair price. Now all parts of the world are brought so near that any shortcomings in Cheshire are made good by distant lands, and the farmer has to bear the loss by drought without any proportionate rise in price as compensation. Cheshire and Stilton have been *par excellence* the cheese of Englishmen, and for a good cheese the consumer is always ready to pay a fair price.

Nature hurries none of her processes, and men were wise while they took her for their guide. This is the age that looks for quick returns. A year is a long time to keep a cheese on hand, but our forefathers said that many a cheese took that time to fully ripen and mature.

We call in the aid of science to ripen our cheeses in a month. We want to see the milk and the money nearer together. But see the result. Such cheese can only be used for immediate consumption; it has no keeping properties, and once a cheese begins to go wrong the case is hopeless.

The maker by his rapid methods is simply cutting his own throat, is throwing away a great and notable industry, and playing into the hand of the foreigner. Good cheese and cheap can be had from many countries, but the British farmer finds his greatest rivals in the United States and Canada. There was a time when a bit of "American" was about as nasty and tough a morsel as a man could eat, but now the case is quite altered.

In the year 1895 we spent 5½ millions on foreign cheese. The United States took £1,608,405, and Canada £2,688,946. Since then the supply from these sources, especially from Canada, has been much reduced, and a considerable increase of price has been the result; so cheesemakers are again buoyed up with hope for the future. But what has happened once may happen again; the Canadians have turned their attention to butter making at present, but they may return to cheese. What the dairy farmers must do is imitate the example of their competitors—make a cheese that will keep as long as it is wanted to, then the undue forcing of unnaturally ripe cheese on a glutted market would be unnecessary, and would hardly occur, as the supply could be controlled to suit the demand.

We as consumers have been tempted at times to invest in a piece of ripe cheese (too ripe), tempted by price, but we cannot remember getting anything but disgust from such a purchase, and have vivid recollections of cheese funerals. Is it any wonder, then, that the public fight shy of such gay, though strong, deceivers, and that merchants have perforce to do the same?

Every year seems to increase our foreign competition. Cablegrams and steam have much to answer for. Cold storage on board ship can be applied to any article of food, and new countries are constantly being opened up.

What will the rich pastures of Argentina do in the near future? There are long-headed men there, cheese plant is easily transported, and cheesemakers too for the matter of that. We have let our best butter trade slip out of our fingers, and it is only by slow and arduous steps we are getting a portion of it back again. It will never do to lose what has hitherto been one of our specialities simply because we are so bent on making haste to be rich. "Haste comes of the Devil," says the old Spanish proverb. We have had a sharp lesson, may we profit by it.

This subject of cheese-making is a very wide one, and a real "artiste" in cheese is a clever person. Some few years ago when there was such an outcry about butter, and butter makers as teachers were in great request, hundreds of girls rushed into the business; it was fairly easy, clean, and pretty well paid. The consequence is that now the market is overstocked, and we know at this present moment in our own small circle of eight really excellent practical teachers who cannot find a day's work.

Just at the same time, when everyone was yearning for butter-making work, came a note of warning, and eager learners were urged to take up cheese-making as a serious pursuit; but the hours were long, the work tedious, and no one, or at least very few, hearkened to the prophet. There is a great field here for the industrious sensible woman—a field she will have to herself, for no dilettante worker need apply for this post.

Professor Fleishmann says (and no greater authority exists), "The art of cheese-making is much more difficult than that of butter-making. In cheese-making a large number of different conditions have to be reckoned with, and their different influences have to be considered and weighed in relation to one another, so that they may all conduce to their definite and prescribed end. To do so requires a certain measure of skill and experience. . . . The art of cheese-making requires two different qualifications—a clear understanding on the one hand of the nature and action of all the processes which come into play in the manufacture of cheese, and on the other hand the particular object which must ever be kept in view in all these processes and in the manufacture of all kinds of cheese."

WORK ON THE HOME FARM.

The weather has again been fine except for one very wet night; the effect of this, however, was soon neutralised by high wind, and the land is little the worse. The drill is at work now almost everywhere, and spring corn is going in well. Everyone seems anxious to sow early this year, and after last season we do not wonder at it. On any but the very lightest soil we do not doubt that early sowing is the right thing if the seed bed be a good one; but good it must be, or the best results must not be expected.

We have got the Wheat rolled and some harrowed. We think farmers generally are too much afraid of harrowing Wheat, they are frightened of harrowing a little up; but the Wheat always branches to such an extent after harrowing that all losses of plant are more than recouped.

Lambing is now in full swing. So far luck has been good. A fair fall of lambs, and with good health a small loss. This is generally the case in a season of Turnip scarcity, for breeding ewes may easily get too many roots, and do so when they are plentiful. The ewes with pairs require better food than those with but one lamb. A mixture of Oats, cotton cake, and malt culms makes a capital milk-producing food to give with Mangolds and grass. The sooner the lambs are got out into the fields the better; in fact, in the case of singles, the weather being mild, it is best never to house them at all. Of course pairs must be penned until the mother has quite made up her mind to adopt both, and the weakest lamb is well able to get about after her.

When half the lambing season has passed over safely, and with good success, it often happens that there is a change for the worse; the ewes seem subject to attacks of feverishness after lambing, and take a good deal of nursing up, whilst some cases end fatally. As soon as a second or third case of this kind is noted the best thing to do is to move the ewes to a new lair altogether. If a fresh lambing fold for night lair cannot conveniently be provided the old one must be cleaned out, watered with disinfecting fluid, and rebedded.

OUR LETTER BOX.

Cow Keeping (Novice).—The 18 acres of grass will be useful for the cows only for two months, August and September, though they might be allowed to run out during the day as long as the weather kept mild. The cost for the rest of the year would be for 3 acres of grass from May 1st to August 1st, £5 (this would vary with the locality). Winter keep varies very much according to circumstances, but £10 each ought to pay for the best of food from October 1st to May 1st. Add £5 for bedding for the three, and you have £40 for the year. This does not include attention. We forgot to allow for cake on grass, say 5 lbs. each of cotton cake per day; this would add £5 more, and would be necessary, especially after June.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1897 February and March.		Barometer at 32°, and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
Sunday	.. 28	Inchs. 30.047	deg. 40.8	deg. 39.8	N.E.	deg. 42.9	deg. 49.6	deg. 34.1	deg. 60.3	deg. 26.0	0.099
Monday	.. 1	29.578	42.4	39.3	S.W.	43.2	51.2	39.3	89.9	33.3	0.292
Tuesday	.. 2	29.772	38.3	36.2	W.S.W.	42.0	48.4	33.3	90.9	27.1	0.493
Wednesday	3	28.746	42.2	38.2	S.W.	42.1	42.3	39.5	49.7	36.1	0.131
Thursday	.. 4	29.484	40.7	38.1	S.	40.5	50.6	34.5	83.9	26.9	0.111
Friday	.. 5	29.301	38.8	36.4	S.W.	39.9	49.1	34.1	88.9	23.6	—
Saturday	.. 6	29.622	39.4	38.3	N.W.	39.9	45.4	34.9	70.2	26.7	0.236
		29.507	40.4	35.0		41.5	48.1	35.7	76.3	29.0	1.362

28th.—Generally overcast, with a little drizzle in evening; gleams of sun at midday.

1st.—Bright sun all morning; slight showers in afternoon; rain from 6.30 to 9.30 P.M.

2nd.—Bright sun generally till 8 P.M., then halo, and overcast after; strong gale with heavy rain at night.

3rd.—Dull and rainy early; wet snow from 11.30 A.M. to 0.30 P.M., turning to rain; dry after 2 P.M., and sunny about 4 P.M.

4th.—Sun early, and from noon to 3.30 P.M.; overcast, with sharp showers between and after.

5th.—Sunny almost throughout.

6th.—Overcast with frequent rain in morning; fair afternoon with a little sun; rain again from 9 P.M. to 11 P.M.

Temperature near the average, rainfall above it.—G. J. SYMONS.



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Journal of Horticulture.

THURSDAY, MARCH 18, 1897.

CHANGES.

IN this world of infinite variety changes are ever occurring—some to sadden, others to cheer. Alternations of sun and cloud, of storm and calm, have of late been familiar incidents. Days of brightness have been followed by more of depressing gloom. The budding trees inspire with hope, and flowers, pure and bright, greet us with their welcome smiles.

Then are we made glad, and even joyous for the moment; but soon comes the boisterous wind, the driving storms of hail and rain to shatter, then again a calm to repair the damage done to tender growth. We rejoice in the quick recovery, and hope on again that all will yet be well; but doubts spring up, and cannot be repressed, that this may not be so. Then comes the chilling frost, and we shudder as we think and feel and grieve over the dire result—the cutting short of fresh young life in its very infancy.

Such has been the experience of many—of all who have spent long years of happiness and anxiety in the garden, for there cannot be one without the other, among those who love and labour in it. It will be the same with others to follow—those still young with buoyant hearts, but their turn and time will come to share in the disappointments incident to life, through changes that chill and crush and which cannot be averted.

There are other changes—less fitful, less violent, but more uniform, certain and sure—those imperceptible changes, but eventually so visible and important in results, those inherent to steady progressive growth, from tender plant to stately tree, from leaves to blossom, from blossom to fruit, and the advancement of this to maturity. When its course is run it ripens and falls, it has done its duty. Its purpose is fulfilled, and the end has come; but the tree lives on, and is prized for what it has given us of the richness of its resources over many years, and still more is hoped for, no matter how many crops it has borne.

For a time, even a long time, it does not fail us, but eventually signs of exhaustion become apparent. We may seek to restore the lost vigour, and may appear to succeed for a while; but feeble-

ness returns, and the fact is forced upon us that the life's limit of the tree is approaching. Still we cherish the hope that the sun of spring will awake it from its winter's rest, but in vain. The end of the once vigorous and fruitful tree, now old, has come at last. Those who have known it long and loved it well grieve over its loss, and recount its famous doings in the past.

So it is in human life. The young succumb through adverse contingencies, the old remain to ripen and in time they fall, leaving a blank never to be filled in like manner again. A great tree fell in the garden of humanity when Dr. Hogg sank quietly to rest in charity with all men in the early hours of Monday morning last—an event that will be memorable in the annals of horticulture.

Further reference to the deceased gentleman will be found in subsequent pages.

OUR HARDY PLANT BORDER.

HONESTY (LUNARIA BIENNIS).

THE gardens of the wealthy are commonly occupied with choice exotics, effective either for foliage or flowers; but are some of the old plants that were favourites in our grandfather's time as often grown as their merits demand? Honesty is certainly one of those that with ordinary care and judgment in selecting suitable situations will give ample return for the attention accorded, though it is excluded from many gardens. Perhaps one reason for this is because the variety best known has flowers of a purplish colour, a tint which is not in fashion, and ladies frequently condemn it on this account, though when they have seen a bed or border of vigorous plants in full flower their opinion has been known to change, as ladies' ideas in such matters will do occasionally.

There is something peculiarly stately and distinct in the habit of a well-grown biennial *Lunaria*. The foliage is not unlike the greenhouse *Cineraria* in size and substance, but more angular, and with longer leafstalks, the leaves radiating evenly from the central stem; then when the branching inflorescence is fully expanded a fine pyramidal specimen, 3 feet or more in height, is obtained that cannot fail to attract admiration. The contrast between a weakly ill-treated plant and one that has had its requirements properly studied is as great with Honesty as it is with others that come under the cultivator's care, and it is easy to understand how a plant acquires a bad reputation.

The objection as to colour is overcome to a considerable extent by grouping the purple and white varieties together either in beds or in neighbouring lines, the dwarfer habit of the white form rendering it suitable for a front line or margin. A white-flowered variety of *Lunaria biennis*, according to the books, has been known for 300 years, but it is much more rarely seen than the purple form, and is strange to many persons who are familiar with the common one. The white form we have seems, however, to be distinct from this, and is much smaller in all its parts, except the flowers, which are of the usual size and of a peculiar solid white that is rare amongst flowers, especially those derived from purple or crimson specific types. The leaves are dark green, and the appearance of the plant is altogether so compact and pleasing that it is worth more attention for itself alone, while as a companion to its coloured relative it is invaluable.

One product of the *Lunaria* is greatly valued—namely, the rounded silvery white inner partition of the seed pod (from the fancied resemblance of which to the full moon the generic name is derived), and where these can be allowed to remain until they are matured huge bunches can be obtained that are unrivalled for room decoration in winter, especially if something furnishing bright colour can be associated with them, such, for instance, as the expanded seed vessels of *Iris foetidissima*. Obviously when it is desired to secure the Honesty seed pods the plants must not be placed in a conspicuous position, for they have a very untidy appearance until the inflorescence can be cut away.

In the culture of Honesty the two most important points which in our experience influence the results are early sowing and early transplanting with the greatest possible care. The first or second week in April, if the soil is in good condition, is a good time for sowing the seed, ordinary well dug but firm soil being suitable, and we have found the seedlings do best without any manurial aid in their first stages. The transplanting must be done immediately the seedlings have produced the first leaves after the cotyledons, for strong downward roots are a characteristic of the *Lunaria*, and if these are broken or damaged when more progress has been made the plant never properly recovers. Every root must be preserved, and the planting should be preferably done

when the soil and atmosphere are moist, otherwise watering will be needed frequently until the young plants have become established. Unsatisfactory results are more frequently due to late or careless planting than to any other cause.

It is usually advised to plant this *Lunaria* in partially shaded positions or near shrubberies, and in a general way the advice is sound, but an instance may be cited in connection with the shade recommended as necessary which shows how difficult it is to generalise in dealing with the behaviour of plants. One of the finest displays of Honesty we ever had was in a narrow border immediately in front of a lean-to vinery facing due south, which being situated at a high part of the garden had the full effect of the sun all day. Yet the plants grew here most vigorously, produced handsome foliage, and flower stems 4 feet high. The soil was, however, rich, firm, and moist, for it was connected with the vinery border, and that being rather small was frequently and heavily watered. Beyond this, too, the plants were put out very early, and had well rooted in the soil before the sun had gained power enough to be injurious. In front we had a band of white Pinks that flowered early, and when we could get the two together, as we did sometimes, the effect was very pleasing.

In the border now under consideration the heavy moist soil undoubtedly suited the plants, but there was little difference in their behaviour in the shade of trees, or in the open where the other conditions had been provided. Nitrate of soda in very small quantities has a stimulating effect upon these plants if used early in June, so that there is time for the growth and leaves to become well developed and firm before autumn. The lightest sprinkling around the plants increased the size of the leaves greatly, and affected the subsequent development of the flower stems in the same marked degree. Sulphate of ammonia has a similar influence, but not quite so marked, and we prefer the former; while superphosphate or potash had little perceptible effect, though we fancied that where the superphosphate was employed the seed pods were somewhat larger, but this was not determined accurately, though it will be noted another time more carefully.

To insure the best results with the seed pods for home use, they should be gathered as soon as they are perfectly ripened, and the seeds can be seen within; if left too long they are liable to become discoloured, and are then useless for decorative purposes. The stems are cut off near the heart of the plant, tied together in loose bundles, and suspended in a cool shed where they will be safe from damp, and can dry gradually. The two outer valves of the pods must be removed by hand, as the partitions are easily split, and no other method that we have tried is satisfactory.—A COUNTRYMAN.

(To be continued.)

AS OF A DREAM.

I THINK "A. D." gave very good advice on page 95 about planting trees. It has set me thinking of the long ago, and to resuscitate notes which were ship-shaped for these pages in its first issues under the cognomen of the "Cottage Gardener."

Memory! Why I seem to remember it as well as if it only occurred yesterday. I was a very precocious gardener; began in fact by destroying my mother's household store of wooden spoons through using them for spades. This caused my father to buy me a toy spade at our neighbouring town of Bury St. Edmunds. I very soon afterwards made cause to try this "spade's" capabilities; and I had uprooted a good portion of newly planted Gooseberry "trees" before it was discovered what I was about; but I uprooted also during my labour a tiny Ash seedling, which a born instinct must have caused me to replant in a narrow strip of flower border flanking the wall of our cottage on Rushbrook Green. Well, there the sapling remained. My mother would not allow it to be removed till it became so large it began to undermine and endanger the house. Eventually the tree was planted in the park by Mr. Joseph Wigg, who was gardener to the late Col. Rushbrook for many years. The replanting of the tree was a subsequent cause of many Ash trees being planted in the park by Mr. Wigg. They had arrived at a good size when I last saw them twenty-two years ago, but I shall hope to see them again before I die. At any rate "A. D." can learn from the above that I began to do what he now recommends ever so many years ago, and he can tell you, if he feels so disposed, that he has been familiar with a good bit of my latter days' work in this respect.

I will return to A.D. 1820. Age and mischief increasing, I was sent to the village dame's school. After a spell of some two years, and learning but little, Dame Westley was very glad to be rid of me, as I never could desist from "worritting the flowers and things in her garden." Poor old soul! she might as well have included herself in the observation.

Thence for two to three years' more spell at a school in the neighbouring parish of Rougham, experiencing many canings. "Old Dicky Harrison" had a garden, with a pond surrounded by banks of Strawberry beds, which we used to water with cow's horns attached to the ends of long stout handles. His Filberts and Cob Nuts! and then the Apple gathering time, or any other chance when the fruit was there, in the fine old orchard! "Jim Hazlewood, my worthy fellow sufferer, are you alive to remember?" Are there many of us alive now to remember the holding up with his outstretched arm that capacious silver "ticker" to the very moment when it was time for "all in?" a good, kind-hearted man—peace to his manes.

I had not long overshot the age of ten, with but rudimentary knowledge of the R. R. R.'s, when I was taken away from Mr. Harrison's—it was no joke for fathers to pay for "schooling" in those days—and placed as a page to the young ladies at the Hall and their governess. A full share of my occupation was to attend upon them in their flower and kitchen (save the mark) gardens. This employment suited me very well, but how I disliked the governess! I have been told, too, that as soon as I entered my "teens" I became unmanageable—objected to take up the flowers or what not under a reasonable time to "see if their roots were growing." An idea, too, began to strike root in my

some old, worn-out cider Apple trees in the orchard, to be replaced with young ones of superior kinds. It was thought to be something akin to sacrilege in those parts then to destroy an old cider Apple tree. Jones was the factotum of the vicarage—sexton and parish clerk—endowed with a voice magnificent, coming as if, as he always read it, from the "depths of the sea." And to hear him sing! Well, I could give a comparison, but you might not like me to do so. Ah! Jones, Jones! you were a man of ample rotundity and of infinite humour. When shall I look upon your like again?

A coincidence to become indelibly printed on my memory happened as I was finishing the planting of some young Sycamores behind the church, to eventually screen it from a dirty farmyard and buildings. Williams—he lived in a pretty cottage at the "Hope"—was foreman to Lord Craven's workmen for his woods and plantations, passed by, and made the remark contemptuous, "I wonder who we shall have for woodmen next." I replied, I wondered so too; that I should like to be one vastly, for by what I could judge or had learned from him it was a very easy lucrative employment. I retain Williams in my mind's eye—a stalwart man, enveloped in a long white smock; so having portrayed him I will enclose for your ocular inspection two pictures as being intimately connected with my subject.



FIG. 50.—STANTON LACEY VICARAGE IN 1837.

mind comparatively, I likened myself as being the oldest son of a poor man, analogous to the youngest sons of a rich man; both had to turn out first to seek their living; besides, I wanted to be off, and the "governess" expedited me.

An opportunity offering I was placed at a watchmaking and working jewellery business in Knightsbridge. I could not become reconciled to the confinements of solderings, repairings, and cleaning of watches and clocks, so in less than two years I ran away, became *perdu* in the neighbourhoods of the London docks trying to get a berth as "cabin boy" to go to sea in any ship that would offer to take me. I could not; so after being sworn at by some authority or other on board, or laughed at as the case might be by the sailors; and then having spent or become cheated out of my limited stock of money, I was compelled to make my whereabouts known to the folks at home. How I escaped without blemish by associating with the lowest of the low some three weeks in the purlieus of the docks is a mystery to me to this very day.

After a time an opportunity offered, temporarily it was thought, for me to become located with the Rev. G. W. St. John at Stanton Lacey, near Ludlow, in Shropshire, a young man whose uncle, the then Earl of Craven, had not long before presented him to the living. Mr. St. John was just about completing the building of his new vicarage house. He was fond of poultry and pigeons, and I was to attend chiefly to their wants. But above all things I soon found that my propensity for planting could be fully gratified, so I felt myself at home, and gained a bad name quickly through winning Jones over to assist me in uprooting

The church depicted, about the time for which I am writing, had been made to undergo repairs, with readjusted seatings. A new south window, more in Gothic unison with the others, was substituted for the horizontal manufactory-looking affair, which had admitted light for possibly more than a century, right across the south limb of the structure, as I have etched it.* The large trees shown were, and may be growing there now, old Sycamores. The foreground flanked the public road, which had the newly planted shrubberies of the vicarage for the other side. Young Elms in line were placed bordering the eastern part of the churchyard, not shown.

The water colour drawing of the house and grounds was taken by Mrs. Stackhouse-Acton, daughter of Thos. Andrew Knight, Esq., the then President of the Royal Horticultural Society, in commemoration, the newly planted Apple trees in the foreground being the chief instigation for it. A sunk fence, or haw-haw, separated the lawn from the orchard, scarcely to be seen in the drawing. The large tree in the foreground by the bank of the river was a grand old Barland (Cheat the Boys) Pear. In a good season I had made as much as 3 hogsheads of perry with its fruit. The orchard extended some 1½ acre to the right (not shown), and 200 yards on the left. The distant outlines forming a background represent the Cleve Hills. Behind the large old Yew depicted upon the right hand from the house was the

* An excellent sketch, such as any gardener might be proud of, but we have only space for one illustration, and choose the more gardenesque.

kitchen garden and my Potato trial grounds. I was in earnest so long ago as then "beating about the" Potato "bush" by selections from the best.

I find you will not be able to afford me room in this issue to allow me to complete what I want to say about the memorable plantings, but you may perhaps find space to admit the detail of a circumstance which happened almost on the spot where Mrs. Stackhouse drew her pretty picture. Almost every farm around there pertaining to a fair size had its limekiln, and plenty of stone for the getting to burn into excellent lime, which I availed myself of largely in the year of the fatal Potato disease, 1847. I remember I was very busy dusting quicklime over the stricken haulms, when Mr. T. A. Knight of Downton Castle, and the Hon. R. Clive, M.P., of Bromfield Park (neighbouring parishes) called. Both gentlemen were enthusiasts in the cultivation of the esculent. They called on Mr. St. John, to consult possibly, as we were becoming "an authority" on the Potato, about the sudden infliction. All strolled to the "trial ground," and caught me in full blast upon a patch of the "Birmingham Blue." "Dusty Miller" could have answered for my appearance. I had often hob-nobbed with Mr. Knight, and I was not unknown to Mr. Clive. The visitors said, in fact I knew, they were trying different specifics upon their Potato haulm. They decided also to use the lime. I learnt afterwards that every nostrum failed, as the lime did with me, to check the fatality.

Papers are now appearing in the "papers" about some desirable new vegetable being invented in com —. I have a new species of *Solanum tuberosum*. The seed was sent to me from Mexico last spring. I have raised some beautiful little tubers from it. I had also another wilding sent to me from "New" Mexico twenty-two years ago, and if it takes me as long to bring my new comer into the same promising productive capabilities I shall have attained to the age of over 100. It is expensive work, though, is the raising of new varieties of the esculent, for however excellent they may be one cannot secure a patent, or even the credit of having raised them. But this *par parenthesi*s. I have much more to do and unfold to you (if the workhouse do not prevent it) re the noble tuber; after my two parishes' overseers' audit, for which I have received notices, I shall have to return again to Stanton Lacey in 1837 before I detail my experiments with the murphies in 1896.—ROBERT FENN, *Sulhamstead*.

DUKE OF BUCCLEUCH GRAPE.

I AM often asked about this Grape, and have written much privately to gentlemen in various quarters regarding it. It has occurred to me that if I were to state in the columns of the Journal a few of the peculiarities of this noble Grape it would save me some trouble, and be advantageous to many. They have been treated before, it is true, but that is some time ago.

First of all I would remark that "the Duke" is a splendid Grape, raised by my late father when at Dalkeith, and named after his noble employer, the late Duke of Buccleuch, at his special request. It has, however, certain peculiarities of constitution that require special treatment, and it is to these that I would like at present to draw the attention of all who think of going in for the cultivation of "the Duke."

First of all, I may remark that it fruits best on the young wood, therefore it should be the aim of all its cultivators to maintain a succession of young rods. Then when pruning, the spurs should be left at least three or four eyes long. When the Vines break the best shoot can then be retained, and the others removed. "Tying down" should not be done as soon as in the case of most other Vines, as "the Duke's" shoots are very strong, and at the same time rather brittle.

Supposing that the "tying down" has been successfully accomplished, the next thing to consider in the culture of the Duke is the "setting" of the bunches. We have always found that artificial impregnation is required, and in addition to shaking the Vines we go over the bunches very lightly with an ostrich feather or a rabbit's tail. This insures a good "set." The next thing is the thinning. Let the berries be as big as possible before thinning, and then when one can judge of the proper "set" the bunches must be well thinned out, for the Duke has an enormous berry when well grown.

Sometimes, like the Muscat and Lady Downe's, the Duke is apt to scald a little during the stoning period. We have found a very slight shading, thrown on the glass with the syringe, quite sufficient to prevent this. Then when the berries are ripening the atmosphere should be kept as dry as possible, and water withheld from the roots.

With treatment such as I have described we have for many years grown the Duke to perfection, and only those who have seen and tasted this variety in its prime can realise what a noble fruit the Grape is. With a thin skin, one, or at the most two, stones in each berry, grand appearance, luscious flavour, and most refreshing and sustaining qualities, the Duke is well worth all the extra trouble that may have to be bestowed upon its culture.—JOHN THOMSON, *Glovenfords*.



ORCHIDS IN FLOWER.

AT no time in the year is the house devoted to flowering Orchids so gay and interesting as now, the number of choice things in bloom being remarkable. Almost every genus has a few members that flower during the present and succeeding months, while many—such, for instance, as *Dendrobies* and *Cypripediums*—are giving us of their choicest. The number of *Cattleya* species in bloom is not great, but so rich are they in varieties that they are quite a host. Take *C. Trianae* as an instance of this. From the lovely pure white *C. T. alba*, with only a dash of orange in the throat, which enhances its beauty, we have a chain of intermediate forms to the brightest rose, the markings on the lip being especially beautiful in some of the paler forms.

I consider the most beautiful varieties are those having the colours well defined and clear, the splashed sepals and tints running into one another lacking character. Anyone interested may easily see for themselves what pleases them by looking in at any of the large nurseries where these plants are made a speciality. A beautiful species too is *C. Schröderae*, elegant in form and delightful in its soft colouring, while getting away from the labiate group *C. intermedia* and the sweetly scented *C. citrina* find a host of admirers.

With *Cypripediums* one hardly knows where to begin, so numerous and varied are the species, varieties, and hybrids. *C. Argus* is well known and appreciated; rightly, too, for it is a capital species, but *C. Argus superbum* is much better, the flowers larger, brighter in colour, and more profusely spotted. *C. tonsum* is a very distinct plant, the flowers lighter in colour, while *C. Rothschildianum*, with its immense and highly coloured blossoms, is not likely to be forgotten when once seen in good cultural condition and well flowered. The hybrid *C. marmorophyllum* combines the beautiful foliage of *C. Hookeriæ* with flowers almost intermediate between this and *C. barbatum*, its other parent.

C. Calypso and *C. Lathamianum* (fig. 53, page 237) are two beautiful hybrids now flowering, while the well known and free-blooming *C. Chamberlainianum*, and the lesser known *C. Victoria Marie*, are also in full beauty. This latter has the same twisted petals, and the habit of flowering from close green bracts as *C. Chamberlainianum*. The foliage, too, is almost identical, but they are quite distinct from each other. *C. virens* is a curious species, the flowers almost entirely green, of various shades, but not large or showy enough to find favour at the present day.

Cymbidiums are in strong force; the chaste pure white *C. eburneum*, the popular *C. Lowianum*, and the hybrid kind raised between them making a fine show. Those who have not seen *C. Lowie-eburneum*, the later and better of the two hybrids raised between them, may be interested to know that the flowers are larger and brighter in colour, and retain the delicate perfume of *C. eburneum*. *C. sinense* is an old and not very showy kind, but worth a place, if only for its delightful fragrance, a single plant in bloom quite scenting a large house.

Dendrobiums, as mentioned above, are very numerous now, and not the least beautiful are the well-known *D. nobile* and its many choice varieties. *D. n. Sanderiana*, *D. n. albescens*, *D. n. pendulum*, and Wallich's *nobile* are only a few, but the list could be almost indefinitely extended. *D. crassinode Barberianum* is a superb thing. How often this name is seen, but how seldom the true plant! *D. Ainsworthi* is a beautiful hybrid, so is *D. Leechianum*, a better one from the same parents. This is only touching the fringe of what are in bloom, but to mention all would become tiresome. *Dendrochilum* (*Platyclinus*) *glumaceum* is an elegant and free-blooming Orchid, the arching scapes on a well-flowered large specimen being very beautiful, though the individual blossoms are rather small and insignificant.

Orange and scarlet Orchids are perhaps more freely represented now than at any other season, and include the beautiful *Lælia cinnabarina* and *L. harpophylla*, *Ada aurantiaca*, *Cochlioda Noezliana*, and a few rarer and lesser known kinds. *Masdevallias* are not yet in their prime, but I saw in a large collection recently about twenty species in bloom, the best known of these being *M. Shottleworthi*, *M. ignea* and its varieties, *M. militaris*, *M. Chimæra*, *M. bella*, and *M. speciosa*. The pretty hybrid *M. Chelsoni*, too, and its parents *M. Veitchi* and *amabilis* are all fine showy plants.

Odontoglossa are very numerous now, the first place naturally being taken by the cool growing New Grenada species and hybrids, including all the forms of *O. crispum*, *O. Pescatorei*, *O. luteo-purpureum*, *O. triumphans*—perhaps the best of all yellow species—*O. Andersonianum*, and dozens of others. *Oncidium*s are almost as numerous, the long scendent spikes of *O. undulatum*, *O. serratum*, and others in this section being hardly recognised as relations to the pigmy forms, such as *O. pulchellum* and *O. tetrapetalum*. In this necessarily incomplete list many Orchids now blooming are unavoidably left out, but those mentioned show what a rich floral treat may be got from these lovely plants.—H. R. R.

PRECEPT AND PRACTICE.

(Continued from page 178.)

THE Hygro-meter, literally moisture measurer (atmospheric); the Anemo-meter, wind measurer—guage (observe the relation of anemo to Anemone, the Windflower), are scientific instruments it is only necessary to mention now; but we may pause a little over the taking of levels ere passing to other subjects, not with the idea of pressing a matter which is possibly premature, but to excite some thought and interest in a roundabout way on what is probably regarded as a severely straight subject. One of the hardest facts to swallow in youth is that which teaches us our planet is a ball—"round like an orange, flat top and bottom." Hundreds of times have I repeated that formula, parrot fashion, with as little faith in it as Columbus's sailors, who were in hourly dread as they sailed west of tumbling over the edge. Our work being confined to an infinitesimal portion of this terrestrial ball, it follows necessarily that all our practice of this description is carried out on a dead level. That is the case, and so far as our work is concerned it is safe to say that the matter begins and ends there.

Yet it is as well for young students to voluntarily digest now a few of those facts previously swallowed under compulsion; to know that there is no such thing as a dead level in extended engineering on our magnified orange beyond the "flat top and bottom" at the frozen poles. A simple but glorious scientific revelation, over which many a puny battle has been fought with scepticism in the bothy. One lad argued the matter with me, and settled it to his own satisfaction by the logical (illogical) conclusion that the sea would run off (where to was not stated) if it was not level—level as he knew it. But the sea furnishes as good an illustration as we probably have within our powers of vision by observing some tall-masted vessel going away hull down over the brink, may I say, the last thing to disappear being the masts.

To all ordinary intents and purposes the spirit-level is adapted to our needs, which if placed upon a lath, or better still set into one of well-seasoned wood, planed level and true, of 10 or 12 feet in length is, with a handle attached, a convenient and portable instrument. With this I have carried out some considerable extent of practical work, although that has been chiefly limited to the forming of tennis and croquet grounds, but work of sufficient scope to show the necessity of some skill to prevent unnecessary labour and to insure success. Probably the early days and duties of a young gardener's life will afford but little, perhaps not any, opportunity for practical lessons in this direction, but there is nothing to prevent him from working out some simple problems upon paper, with the endeavour to include in his mind's eye some particular piece of ground in the locality. Without diagrams to illustrate the text I fear that any further digression would scarcely be justified, but I have great faith in the intelligence of young readers, and only wish to impress upon them the desirability of including such matters in their repertoire, that when called upon hereafter to play a practical part it will not come as a surprise.

In the early days of croquet—and that is a long time since—my first lesson in levelling of a negative kind was received. It was another of those instances of how *not* to do it, my worthy mentor being one of those who practically regarded lines and rules as fit for — (it rhymes), including the level. His eye was "good enough," but it proved to be a near-sighted policy. Soon after that my eyes were opened by being permitted to peep through a theodolite which it was my task to carry for a gardener whose practical knowledge had been called for in wider fields, and this gentleman was good enough to let me see other things as well, from which the moral may now be pointed that as a "head" it will be your duty to engineer such matters that the "hands" may be spared all unnecessary labour, that not one barrowful or cartload of soil is to be removed one yard purposelessly. "Mind rules, not muscle."

For the higher phases of our work it is essential that the eye should early note the fundamental lines of utility and beauty, which, indeed, are parallel lines, and by continual if voluntary exercise seek for perfect examples of their kind. These may be

seldom found, but the negative teaching is, possibly, higher teaching in showing what to avoid when a standard or ideal is formed. In the higher phases of life—our lives—it is the prerogative of all who possess the natural senses, who are rational, thinking beings to see, to enjoy, and in a great measure to understand the marvels of creation, the most minute of which transcend our greatest efforts, but all of which it is given to us to have dominion over. Therefore is the human mind endowed with viceregal power. Yet pass we on; we of all people who should hear the low whisperings, should see the deep beauty of nature, deaf, blind, till life half becomes a weariness, and this with all its compensating influences at our feet.

Perhaps I am going out of bounds, hence I will go no further, but return to the practical by asking our boys to open their eyes to this world of beauty around them. Some are, perhaps, situated in their sojournings, which to their mind compare unfavourably with sights and scenes they have left behind. I have seen it so; seen young men on their "Sunday out" lie in bed all day sighing mayhap for "the hills that are wild and majestic, the steep frowning glories of dark Lochnagar," and, somehow, when this spirit of discontent takes possession it often holds through life. Possibly in early life my case would have been the same, but the position was reversed, for escaping from the old home, which was under the fringe of the great London smoke cloud, to the wolds of Gloucestershire, I tramped the hills for miles around, hailing every known wild flower as an old friend, and the unknown as new ones. This may be a bad or at least a doubtful moral, but the lesson has long since been learned that wherever fate ordains for us to spend our lives there nature has satisfaction for us in some shape or form.

We should, it may be thought, find all this in our work—the work that early duties impose upon us, but that may for some considerable time be limited to a small portion of so large a subject. No! we cannot, we must not confine our attention to the vineries, the pineries, or even to the garden proper, but "zigzag" in all the little things which lay around us pertaining directly or indirectly to the vocation, and these may be anything, from a neglected tree to a thriving plantation, a satisfying landscape to a treeless waste, a fine example of natural rockwork, or a suburban monstrosity called a rockery; in fact, I hardly know where one could not go, or what one could not look at without seeing the way how to do, or *not* to do, some particular thing, for "They who truth and wisdom lead, can gather honey from a weed."

I daresay that there is not any young gardener who does not pick up a number of vague ideas, which he intends to carry forward for future benefits; but when the time arrives for using them, vague ideas will not serve—they rather tend to confuse, and hence become our master. Can you not skim the cream as you pass along, and mentally churn it into something solid, something good, something that will keep? Note all, good and bad; and let your mind be the separator, to your ultimate advantage. You will say, "Who amongst us novitiates are endowed with these high powers?" None, truly; but are there any who cannot cultivate their growth? None; but many, alas! who will ignore the necessity of doing so. To this end I will next endeavour to sow a few seeds from a prize packet—seeds only; and that, as I am well aware, for cultivation under difficulties, yet "To all the prize is open, but only he can take it who says, with Roman courage, 'I'll find a way, or make it.'"—AN OLD BOY.

(To be continued.)

HARMFUL AND HARMLESS GARDEN MOTHS—2.

JUST now, when the welcome influences of spring are calling forth so many animals and plants to a new life, the largest and presumably the strongest of our British moths is seemingly unaffected. All the males and females of the species are slumbering deep in the earth, protected by the chamber which was the last work of each retiring caterpillar. Yet it is true that with the chrysalis shell the warmth and moisture of the season are developing the future moth which is to emerge when summer is at its glory. A moth this of the fields, yet of the gardens too, for sweets attract it to those spots where flowers or fruit abound; and where bees are kept also the caterpillar is found at times upon various plants in enclosed grounds, though it more frequently occurs about Potato fields. Not by any means a common insect generally, but it is plentiful some seasons in a few districts, specially towards the West of England. It was rather, as a caterpillar, abundant in North Kent during the autumn of 1884, yet the moth was seldom observed either before or after.

This species, the death's head (*Acherontia Atropos*), which has also been sometimes called the bee tiger for a reason that will appear, has never, to my knowledge, been induced to deposit eggs in confinement; but probably, like its immediate relatives, it

deposits a good number—above a hundred, no doubt. Still, it shows no tendency to increase, but rather to diminish throughout the country. I do not think it is or has been made less common by the exertions of farmers and gardeners because, large as it is, the caterpillar does no serious damage to Potato crops, nor indeed to the other plants upon which it sometimes occurs. Of course, some of them are killed by the workers amongst Potato crops. In several counties the death's head caterpillar is known by the ridiculous name of "lokus" if it happens to be noticed. Generally it retires under the earth by day or rests upon it, feeding at night. This may be a natural precaution against the attacks of birds; possibly it is in danger from some species. Experiments in rearing this moth prove that it is rather liable to die from various causes instead of emerging from the pupal state. Then the species is sometimes the victim of ichneumon parasites, which, small as they are, kill the caterpillar before it reaches maturity. Again, there is another peculiar circumstance in its history—that most years, if not invariably, a part of the annual brood comes out on the wing late in autumn, about October or even November, and these moths die off without depositing any eggs.

The familiar English name of "death's head" bestowed upon this harmless and handsome moth is ominous enough; the Latin ones are equally gloomy, significant of death, and of the river, which, according to the myth, flowed in the infernal regions. All this arose from the thorax of the species in this genus bearing a mark resembling a skull or skull and cross bones. Superstitious fancies connected with our native example have had two opposite results in the minds of some folks—a desire to kill the creature, and also a fear of meddling with it should one approach. Now and then a death's head has appeared in a shop startling people considerably, being attracted no doubt by some odour such as comes from a grocer's. In some countries the moth is supposed to be the companion of witches, and to mutter mournfully as it flies the names of persons who are soon to die, or, from its happening to be common at the time of an epidemic, it has been regarded as a disease bringer. Even about England the entry of one into a house has been thought a sign of illness or death, and in Hampshire some villagers have the odd notion that the death's head moth was unknown till after the execution of Charles I.

An average sized specimen measures about 5 inches across the expanded wings. The body, head, and legs are thickly clothed with velvety hair; in colour it is chiefly brown, varied with yellow and black; the thick antennæ have hooked tips. Though it seems to be a cumbrous flier this moth is known to travel long distances, and is believed to cross the Channel sometimes. Short is the proboscis or trunk, hence the number of flowers from which it can obtain honey is limited, and the moth visits gardens or orchards partly to feast upon over-ripe and fallen fruit. July or August is the season of its flight, and the young caterpillars are about in September. They have been taken feeding on Jessamine in gardens, along hedges on the Bittersweet or Woody Nightshade, and other wild species of Solanum, also they will patronise the Snowberry and the Tea Tree (*Lycium barbarum*). Even in the same brood the colouring of individuals varies, shades of brown, yellow, or grey, but always black dotted and bearing seven bluish stripes, the tail having a rough and recurved horn. When full grown the death's head caterpillar is indeed a giant of the caterpillar race, and being an unarmed giant has reason to be wary in its movements as it increases in size. A search for it is most likely to be successful if made in the dusk of evening, or later, by the aid of a lantern.

All gardeners will have observed that caterpillars generally have no idea of acting on the defensive. Any large one, should it be annoyed, will attempt to bite, throwing its head about in an aimless way; but the jaws, so effective for cutting food, seem unable to pierce the skin of the hand, nor could they keep off a bird enemy. It is, however, the fact that caterpillars occasionally bite, and even kill each other; some, too, have special means of defence against their foes, and the death's head has the power, extremely unusual amongst caterpillars, of producing a sound. This was first noticed by a German entomologist (the insect is much commoner on the Continent than it is here), and he compared it to the snap of an electric spark. An English entomologist, who has reared many of these caterpillars, finds that some of them are less inclined than others to make this noise, meant, no doubt, to startle the meddlesome from too near approach. What offends this caterpillar particularly is to be tapped on the head. Mr. Paulton says his conclusion is that the sound is produced by the mandibles, which are large, and have a remarkable range of movement, so that they can bite over each other. On the outer surface of each is a transverse ridge, and when one mandible is gliding over the other towards the base it passes over this ridge with a jerk. The resistance and the clash of the hard membrane probably explains the noise.

While a torpid pupa the insect may be made vocal if it is near the time of emergence. An entomologist removed part of the mesh covering the head, and a sound was heard, which seemed to be caused by the tongue being drawn into the form of a bow and then flattened as before. This is, however, like that of the caterpillar, faint to that produced by the moth, and also different. Its plaintive cry has been compared to the squeak of a mouse; it is peculiar, and has no doubt, as remarked, much to do with the superstitious fears of the winged insect which exist in many countries. Some entomologists supposed the sound came from a special apparatus in the body, but it is now believed to arise from the friction of the proboscis or tongue against the palpi. The known visits of the death's head to bee hives suggested the idea that the moth by means of this sound alarmed or paralysed the bees, and thus avoided the danger of a sting. But I really can scarcely think an insect so courageous as the bee generally shows itself to be would be at all affected.

In Britain this moth has been noticed to haunt bee hives. Evidently it has no chance of entering the average hive of modern style; it can smell the honey, but it is unattainable. The old-fashioned hive did give access, and occasionally one would be found dead within; having entered it could not always escape. For sanitary reasons the bees, it was noticed, often embalmed the big body of the moth with propolis. On the Continent bee-keepers have found the bees construct a kind of fortification, sometimes just at the door, which excludes the moth. Entomologists seem to doubt whether the sting of a bee could penetrate the fur and cuticle of this species. To add one more fact, the insect has been perceived to give off now and then a pleasant odour like that of Jessamine.—ENTOMOLOGIST.

LAPAGERIAS.

THERE can be no doubt that these plants will bear low temperatures without injury, and a slight frost reaching them when grown under glass does not appear to injure them in the least. But in houses where the winter temperature is low, and the structure is also kept as cool and airy as possible in spring, the plants are placed at a great disadvantage in comparison with those that are accorded more genial treatment.

Under cool treatment throughout the year, or during the earlier months of the year, Lapagerias are naturally late in starting into growth, which largely influences the flowers they produce. The wood has no time to mature thoroughly, the flowers are late and do not possess that bright colour and size characteristic of good forms of *L. rosea*, while its white companion is too often tinged with pink. Late flowers of the last named, produced under cool autumn treatment, have in addition a greenish tinge that mars their beauty.

TEMPERATURE.

To grow Lapagerias freely, strongly, and rapidly, the structure in which they are accommodated should be kept close and moist from the present time, with a night temperature of about 50°. The conditions favourable for starting Azaleas and Camellias into growth after they have flowered are suitable for Lapagerias. They soon start into growth; in fact, if the temperature of the house in which they are growing has ranged from 40° to 45° throughout the winter, they will be ready for bursting at once into growth, and strong shoots will soon commence to issue from the base. By assisting them to make their growth early their shoots lengthen rapidly, and partially mature the foliage before the sun gains much power and shading becomes necessary.

Cold draughts cause the young tender shoots to flag nearly as much as bright sunshine does, therefore little ventilation is given before April, when it may be gradually increased until greenhouse treatment is given them from the middle to the end of May. The plants have thus a longer season of growth and abundance of time to mature their wood thoroughly. This is important if they are to bear flowers freely, large and bright in colour, or of the purest white. Gentle warmth, even during the close of the flowering season, will prevent their coming green or tinged with pink. This is certainly the result of a low temperature. The plants increase much more rapidly in size by the gentle assistance advocated than they are capable of doing by the cool airy treatment too often given them.

Where Lapagerias can be planted out they make greater progress than in pots. This is not because they like a large amount of soil for their roots to ramble in, but because they are not exposed to the same drying influences as in pots. Their roots require a cool position where a uniform condition of moisture can be maintained without having to be continually pouring water into the soil. In selecting a place for them, hot-water pipes, or anything else that may tend to unduly dry the soil, should be avoided. Tubs decay, or they would be better than pots, because they do not dry, however rapid evaporation may be, quickly enough to be a source of danger to the roots. Probably the next best method is growing them in large pots, and plunging these to the rims to prevent evaporation.

COMPOST.

The soil in which Lapagerias will flourish is not so important as many suppose, for I have seen them luxuriate in a variety of composts.

A safe mixture, however, is good fibry loam and peat, broken up with the hand and used in equal proportions. To this add a liberal quantity of coarse sand, a few half-inch bones, a 7-inch potful to each barrowful of soil, as well as sandstone broken up. The latter we prefer, because the roots cling to it tenaciously, and it keeps the compost sweet and porous. Press the soil moderately firm, for the plants do better in it than when it is light and spongy, which necessitates frequent applications of water. When the plants are limited to pots a greater percentage of peat may be used, or all peat, which remains in a sweet condition for a longer period than a mixture of peat and loam.

Good drainage is absolutely necessary, but the border in which they are growing should not be over-drained. Although they like moisture in the soil about their roots they cannot endure it in a stagnant condition. When the border is limited in size and it is once well filled with roots rich top-dressings are necessary. The surface should be annually removed down to the roots and good fibry loam supplied, with one-seventh of decayed manure, which will be found to assist them wonderfully.

The shoots are generally trained upright, especially strong suckers that issue from the base, and on the whole this is probably the best means of training them; in fact, strong growths should be trained after this fashion the first season and allowed to extend as much as possible. Strong shoots from vigorous plants will travel yards in a season. If left in this position they will break freely, and make a spreading head towards the extremity. They may be allowed to do this with advantage. But when there is space to fill time is lost, and the progress of the plant sacrificed by allowing them to remain in this position after the second season. Few, if any, of the lower eyes will burst into growth; they may remain dormant for years. Shoots of this nature, or old strong shoots that may have been trained upright, will produce a number of strong growths that will extend rapidly if they are laid horizontally at the base, and the weaker shoots at the top trained upright. Plants that are bare at the base will quickly be furnished with strong flowering wood by this simple process.

SYRINGING.

It is necessary to syringe the plants frequently to keep bare old stems practically moist for a time, until the buds swell and burst. A free use of the syringe is an advantage to the plants during the whole of the growing season, and should be discontinued only after the completion of growth until flowers are visible, when it may be continued until they show signs of expanding. If all the flowers are gathered a good syringing will prove beneficial. At the present time, on bright days, the syringe may be used twice daily, once will be ample on dull days. In May the syringe is used in the middle of the day as well as in the morning and afternoon. If young growths display signs of flagging during hot weather the syringe is used, and they soon revive.

Little need be said about watering, suffice it that at no season of the year should the soil become dry. During the season of growth liberal supplies are needed. If once the border is full of roots weak stimulants may with advantage be given every alternate time they need water during the season of growth. Fresh cow manure placed in a tank with a bag of soot is a capital stimulant. It should be given in a clear state, or strained through fine tiffany and well diluted with water. At this season of the year the water needed at the roots and for syringing should be slightly warmer than the temperature of the house.

Pruning is rarely practised with these plants, although a little is requisite each season. This should consist of cutting back the shoots that have flowered to a good eye. It keeps the plants free from dead and dying shoots, which would be the case if that portion which flowers is not removed. This is all the pruning needed until the plants have filled the roof or the space allotted to them. It is a mistake, then, to allow puny growth to crowd the roof, and a judicious system of thinning should be practised. The shoots selected for removal must be cut back to a good eye, and by this method the space can be kept furnished with strong robust shoots that will flower freely and produce finer blooms than weak, short, stunted growths are capable of doing. If *Lapagerias* are thoroughly established they will bear more pruning than many suppose, and with advantage. Plants that make scarcely any growth annually generally flower profusely, too freely in fact, and they are much enfeebled. They may be restored to vigour by pruning. This is the only means of saving them, for if allowed to continue flowering they become weaker, and finally dwindle and die.

ENEMIES

Nearly all the pests that infest plants will attack *Lapagerias*. Aphides are partial to them, but these are readily destroyed by fumigating with tobacco. Thrips are troublesome, but if the plants are freely syringed these will be kept in check. When established upon the plants fumigate with tobacco smoke two or three nights in succession, or thoroughly syringe with tobacco juice freely diluted with water, to which may be added half an ounce of soft soap to each gallon of water, and a piece of common washing soda the size of a cob nut. We prefer this to fumigating, only it renders the woodwork of the house unsightly. A solution of any of the insecticides recommended for the destruction of thrips may be used. It should be eradicated at once, for it quickly destroys the foliage and brings the growths of the plants to a standstill. If thrips appear when the foliage is firm and leathery a weak solution of petrolum and water, 2 ozs. to 3 gallons of water, will soon destroy it without injury to the plant. The same solution will destroy scale, from which the plants can soon be cleared if they are syringed two or three times in succession during the period of rest. Mealy bug is more diffi-

cult to deal with; it secretes itself behind the scales that protect the buds, and cannot be reached with the syringe. Patience and perseverance in battling with it are the only means by which it can be exterminated.

Shade is necessary during bright sunshine. At first for a few hours daily, but during the months of June, July, and August it is well to keep the blinds over the plants during the greater part of the day where they are grown in a structure facing south. As the growth matures it should be gradually discontinued, and dispensed with altogether by the end of September or early in the following month.—GROWER.

DEATH OF MR. J. CRUICKSHANK, FROGMORE HOUSE GARDENS.

To the numerous gardeners who, as "young men," have during the last fifty years passed through the Royal Gardens, Windsor, the news of the sudden death of Mr. Cruickshank will be received with much regret.

Although seventy-two years of age he enjoyed good health, and died practically in harness, as he was attending to his duties on the day of his death, March 4th. During the evening he complained to his wife of a peculiar sensation and pain in his chest and throat, and shortly before 8 P.M., while walking from the room, he fell, and died in a few moments from heart disease.

He came to the Royal Gardens from Castle Fraser, Aberdeenshire, in July, 1847; consequently, had he lived till July next, deceased would have completed fifty years in the Royal service. After serving as journeyman in the various departments for seven years he was appointed foreman in the Castle Gardens and slopes, where he remained another seven years; and when the Crown took over Frogmore House, on the death of H.R.H. the Duchess of Kent in 1861, he was appointed foreman of Frogmore House Gardens.

He was a gardener of the "old school," with a good knowledge of hardy plants and shrubs, also wild flowers, and could tell many a good tale of the rambles he took in Scotland in search of new and rare species during his bothy life. Being of a happy and genial disposition he was very popular, and never happier than when quoting "Bobby Burns," whose poems he seemed to have learned by heart.

The funeral took place at Windsor Cemetery on the 9th inst., and was largely attended, the remains being followed to the grave by Mr. O. Thomas (the Queen's head gardener), Mr. W. Tait (bailiff), all the foremen at the Royal Gardens, deceased's men, relatives, and friends. Among the many handsome wreaths sent to his funeral as tokens of sympathy and respect was a beautiful one of *Immortelles*, having on a card attached, 'From Queen Victoria.'

ROYAL HORTICULTURAL SOCIETY.

MARCH 9TH.

SCIENTIFIC COMMITTEE.—Present: Dr. M. T. Masters (in the chair); Mr. McLachlan, Mr. Michael, Rev W. Wilks, Prof. M. Ward, Dr. Müller, Mr. J. T. Bennet-Poë, Mr. Douglas, and Rev. G. Henslow (Hon. Sec.).

Beetles with Grapes.—Mr. McLachlan had received some small beetles found about the roots of Vines, about a quarter of an inch long, with a blunt thorax and rather sluggish in manner. They proved to be *Trox sabulosus*, and were introduced in the crushed bones used for manure. Not being vegetable feeders they do no harm to the Vines. The best trap would be a dried rabbit skin with the inner side downwards.

Larvæ of Daddy Longlegs.—He also received a sample of propagating soil in which Iceland Poppies were grown, abounding with the caterpillars of this fly. Bisulphide of carbon, cyanide of potassium ($\frac{1}{2}$ to 1 per cent. solution in water), or to remove the soil and burn it, were methods recommended in such cases.

Apple Root with Adventitious Buds.—Dr. H. Müller exhibited a specimen, thickly covered in places with innumerable buds, usually known as "Burr Knot." The original cause is obscure, but Dr. Masters observed that such roots are often cut up and used for propagating.

Hyacinths, &c., with Root Failure.—A collection of bulbous plants were received from Mr. W. C. Atkinson of Aiglwath, Liverpool, in which the roots had been very imperfectly developed, but then arrested and decayed. Mr. Douglas undertook to investigate the case, Dr. Masters observing that the bulbs might not have been properly ripened before lifting.

Drift Wood from Arctic Seas.—Dr. M. T. Masters exhibited specimens of wood obtained by Dr. Nansen. They had travelled from Siberia to Franz Joseph Land, and consisted of the Siberian *Pinus cembra* (dwarf form), Willow, Elm, &c.

EXTINCT PLANTS.—The number of species of plants which have become extinct is very large, and yet generic groups rarely die out. Comparative researches show that much the greater proportion of plants whose remains have been preserved in a fossil condition from earlier geologic periods belong to the genera which are represented by plants now living, although many of these existing plants differ specifically from the earlier ones. From this it seems that new types are outgrowing the old ones constantly and take their place in the general scheme of life.



WEATHER IN LONDON.—Since last Wednesday the weather in London has been by no means pleasant. There has been a thunder-storm, snow showers, and downpours of rain at frequent intervals. Occasional gleams of bright warm sunshine have been very welcome. Some dry weather would do an immense amount of good.

— **WEATHER IN THE NORTH.**—Cold easterly winds, rain more or less every day, with a very rare watery gleam of sunshine and frequent sleety showers, have made up the record for the week ending Tuesday morning, the latter being fair but cold with no great promise of improvement.—B. D., *S. Perthshire*.

— **FRUIT PROSPECTS ROUND LIVERPOOL.**—In walking round the garden there is nothing at the present time more interesting than the rapid development of the fruit buds, and although we have had a few days of brilliant sunshine yet the weather of the past few days has been of such a nature as to retard them to a great extent. Of this I am glad, for I never remember seeing such a splendid promise of fruit as the trees present at the present time, from the youngest to old veterans of between fifty and sixty years' standing, espalier-trained and standards, and it would indeed be nothing short of a calamity if the unpropitious state of the weather should deprive us of bountiful crops.—R. P. R.

— **ROYAL HORTICULTURAL SOCIETY.**—Constant complaints having been made to the Council to the effect that the business of each of the Committees has lately been disorganised on account of the disregard of the Society's rules and regulations, the Council hereby direct that—1, The rule whereby all objects presented for certificate must be entered with the clerks at the table before 11.30 a.m. be in future rigidly enforced; and that—2, All such objects must be placed on the special table provided for plants for certificate. After the plants have been presented to the Committees they can, if the exhibitors wish it, be incorporated in their groups. The next Fruit and Floral Meeting of the Royal Horticultural Society will be held on Tuesday, March 23rd, in the Drill Hall, James Street, Westminster, 1 to 5 P.M. A lecture on "Bud Transference and its Effects on Fruit," will be given at three o'clock by the Rev. Gordon Salmon, M.A.

— **BERLIN INTERNATIONAL HORTICULTURAL EXHIBITION.**—We are desired to announce that a great exhibition of horticultural products will be held in Berlin from April 28th till May 9th of the present year in celebration of the seventy-fifth anniversary of the Royal Horticultural Society of Prussia. The display promises to be of great magnitude, as already nearly one-third more space is taken than sufficed for the great exhibition of 1890. We are informed that there are comparatively few Orchid entries, and that a good opportunity is afforded for British growers to distinguish themselves, the prize for 100 plants being 100 marks. The Directors would also like to see Cyclamens and other plants, also cut flowers, to compare with those of German gardeners. Schedules and information can be obtained from Professor Wittmark, General Secretary, 42, Invalidenstrasse, Berlin, who will be glad to give a hearty welcome to British amateurs and professional horticulturists.

— **HORTICULTURAL CLUB.**—The usual monthly dinner and conversazione took place at the rooms of the Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday evening last. The chair was to have been taken by Sir J. D. T. Llewelyn, but business at the House of Commons prevented him from attending. Mr. Salmond, Clerk of the Gardeners' Company, was requested to take his place, and in a few appropriate words he thanked the members for the honour they had done him, the youngest member of the Club, in placing him in so honourable a position. There were also present Messrs. Geo. Paul, F. Rochford, James Walker, J. Assbee, T. Francis Rivers, F. Rivers, jun., C. E. Pearson, Geo. Bunyard, James H. Veitch, and the Secretary. A paper was read by Mr. T. Francis Rivers, entitled "Notes on Fruit," which displayed the long and intimate knowledge he had of the whole subject, especially in raising new varieties of fruit. This paper we hope to give in a future issue. It was followed by a very interesting discussion, in which most of the members present took part.

— **GARDENING APPOINTMENT.**—Mr. M. Roe, fruit foreman at Lockinge, has been appointed head gardener to Sir Albert Rollit, Bart., The Willows, Windsor.

— **THE ROYAL GARDENERS' ORPHAN FUND.**—It is announced that Sir J. Whittaker Ellis, Bart., has kindly consented to preside at the annual festival dinner of this charity, which is arranged to be held at the Hotel Cecil on Friday the 30th of April, 1897. The Executive Committee is anxious to give Sir Whittaker a hearty reception, and especially so during this eventful year, the sixtieth of the reign of our beloved Queen, and a large company is hoped for on the occasion.

— **ROYAL METEOROLOGICAL SOCIETY.**—A special exhibition of meteorological instruments in use in 1837 and in 1897 has been arranged in commemoration of the Diamond Jubilee of H.M. the Queen at the Institution of Civil Engineers, Great George Street, Westminster. It opened on Tuesday, March 16th, and will continue on view to Friday, 19th.

— **THE RECENT GALE.**—A very destructive gale raged through Sussex on the 3rd of March, which on account of the damage of trees is, I think, never likely to be forgotten; certainly it never will be on this estate, where it blew down gigantic Elms, Evergreen Oaks, and a very fine Yew tree about 60 feet high; and when I tell you that there are seventy-eight large trees down within a circle of 1000 yards from the house, the wreck can be imagined.—G. HART, *Buckingham, Shoreham*.

— **FEBRUARY WEATHER AT HODSOCK PRIORY, WORKSOP.**—Mean temperature, 41.4°. Maximum in the screen, 56.7° on the 23rd; minimum in the screen, 24.0° on the 12th; minimum on the grass, 13.9° on the 28th. Number of frosts, in the shade, ten; on the grass, eighteen. Sunshine, forty-one hours, or 15 per cent. of possible duration. Rainfall, 3.03 inches. Rain fell on sixteen days. Maximum fall, 1.14 inch on the 5th. Much rain and snow at the commencement, followed by floods; the rest of the month mild, with a good deal of wind near the close.—J. MALLENDER.

— **SUSSEX RAINFALL.**—The total rainfall at Abbots Leigh, Haywards Heath, for February was 3.02 inches, being 0.62 inch above the average. The heaviest fall was 0.59 inch on the 1st. Rain fell on fourteen days. The maximum temperature was 57° on the 20th; the minimum 27° on the 8th and 15th. Mean maximum, 48.06°; mean minimum, 33.21°. Mean temperature, 40.63°, which is 3.37° above the average. The latter part of month was mild, fairly dry, and pleasant. If it continue the season will be an early one. Rhubarb was gathered from the open ground on the 27th. March has come in cold and stormy, and at night on the 1st it was very wet.—R. I.

— **THE WEATHER LAST MONTH.**—February was wet until the 20th, when it became milder and drier, and continued so unto the end. The prevailing direction of the wind was W. on twenty-one days. Total rainfall, 3.06 inches, which is 1.4 inch above the average for the month; this fell on fourteen days, the greatest daily fall being 0.93 inch on the 5th. Barometer (corrected and reduced), highest reading, 30.611 inches at 9 A.M. on the 16th; lowest, 29.256 inches at 9 A.M. on the 2nd. Thermometers, highest in the shade, 56° on the 26th; lowest, 25° on the 28th. Mean of daily maxima, 45.82°; mean of daily minima, 36.10°. Mean temperature of the month, 40.96°; lowest on the grass, 20° on the 28th; highest in the sun, 102° on the 23rd; mean of the earth at 3 feet, 38.96°. Total sunshine, 49 hours 30 minutes. This is remarkable, being exactly the same amount as in January. There were eleven sunless days.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham*.

— **SHIRLEY GARDENERS' ASSOCIATION.**—The annual general meeting of above Society was held, on the 15th inst., in the Parish Room, Shirley, Southampton, and a good attendance of the members rewarded the efforts of the Committee. Vice-President W. F. Mayoss, Esq., presided in the unavoidable absence of the President. The report and balance-sheet were submitted to the meeting for approval. The report showed that there are about 140 members, which is an advance on last year, that there were thirteen meetings during the year, and an average attendance of forty-two. The balance-sheet showed a balance in favour of the Society of £4, and a sum of about £2 members' subscriptions still due, some of which came in during the meeting. The report and balance-sheet were unanimously adopted, and the election of officers and Committee for ensuing year next ensued, the President being unanimously re-elected, and the Committee increased from nine to fifteen. At the close of the business Mr. A. Dean, Lecturer in Horticulture S.C.C., gave a short address on "Horticultural Progress During the Victoria Era."

— **READING GARDENERS' SOCIETY.**—"Table Decorations" was the subject of an interesting paper read by Mr. Powell of Park Place Gardens, Henley-on-Thames, before the members of the Reading Gardeners' Mutual Improvement Association on Monday evening last in the Club Room, British Workman. Mr. C. B. Stevens, the President, presided over a large gathering of members.

— **COOL ROBBERY AT THE R.H.S.**—A cool robbery was perpetrated at the R.H.S. on Thursday, March 11th. The Council room was entered by a thief, who quietly and expeditiously appropriated the overcoat of the Assistant Secretary, Mr. J. Weathers, who was on the other side of the dividing curtain but heard nothing. The thief was considerate enough to leave a bundle of papers from one of the pockets behind him.

— **CORYLOPSIS SPICATA.**—On March 5th this interesting hardy Japanese shrub was in full flower. The flowers are primrose yellow with bright red anthers, which protrude from the mouth. They are produced eight or ten together in pendulous racemes along the whole of the previous year's growth. The individual flowers are separated by bracts the same colour as the flowers. Rather light soil and a sheltered position should be afforded this plant. Although perfectly hardy, sharp spring frosts sometimes injure the flowers.—W.

— **CINERARIAS AND PRIMULAS.**—Mr. Jas. Weeks, gardener to E. A. Sanders, Esq., Stoke House, Exeter, read a paper on the above subjects recently at the Guildhall, Exeter, to the members of the Devon and Exeter Gardeners' Association. *Cineraria cruenta*, he said, is a native of the Canary Islands, and was known in the year 1777. It had taken 120 years to bring the *Cineraria* to the perfection it had now attained. *C. cruenta* is said to be the parent of all the beautiful florists' varieties, which are most ornamental and useful for the decoration of the greenhouse and conservatory during the winter and spring. The *Primula* could be grown by anyone who had a greenhouse with just enough heat to keep out frost, and many of the species could be grown in the open with slight protection. Mr. Weeks then dealt with the best modes of culture.

— **THE WOODBRIDGE NURSERY.**—A well-known East Anglian nurseryman recently passed away in the person of Mr. John Woods of the Woodbridge Nursery. The deceased gentleman had attained the advanced age of eighty-four, and was greatly respected both for his knowledge of horticulture and for his high personal qualities. His nursery, which he confined chiefly to trees, shrubs, and seeds, was one of the best known in Suffolk, and had been carried on by himself and his father for over 100 years. In his prime Mr. Woods was one of the moving spirits in the Woodbridge Horticultural Society. His executors have disposed of the business to Mr. R. C. Notcutt, the *Chrysanthemum* grower of Broughton Road Nursery, Ipswich, who will carry on his existing business at Ipswich in conjunction with the Woodbridge Nursery.

— **DISEASED TOMATOES.**—In connection with what has lately appeared in the Journal in regard to disease in Tomatoes, I would like to point out that it is a great mistake to use any cow or horse manure, or liquid manure in their culture. Some years ago we experimented with some Tomatoes. One lot was planted in a bed where the soil was mixed with cow and horse manure, the other lot was planted in a bed of pure loam mixed with our Vine and plant manure. Disease appeared in the lot planted in the bed that had the cow and horse manure in it, but not a trace of disease was seen in the bed which had only loam and Thomson's manure. The beds were in the same house, and no more convincing proof of the folly of mixing cow or horse manure in soil to grow Tomatoes in could have been produced than the example I have given, to my mind at least.—JOHN THOMSON, *Clovenfords*.

— **WAKEFIELD PAXTON SOCIETY.**—Programme of meetings for the first quarter, session 1897:—March 20th, "Phases of Bird Life," illustrated by lantern slides, Mr. G. Parkin; March 27th, "Swaledale," illustrated by lantern slides, Mr. G. H. Goldsbrough. April 3rd, "Gardening in Relation to Amateurs," Mr. T. Pitts; April 10th, "Natural History Myth and Mystery," part 2, Major Norwood; April 17th, "A Vegetable Workshop," with diagrams, Mr. G. C. Rawden; April 24th, "The Daffodil," with specimens, Mr. J. Duncan Pearson, Chilwell Nurseries. May 1st, "How We Got Our Vegetables," Mr. B. Spencer, Bradford; May 8th, "Our Feathered Friends," Mr. W. Hudson; May 15th, "The Tulip," with specimens, Mr. J. L. Pickard, Leeds; May 22nd, "Basic Slag: Its Utilisation and Value to Gardeners," illustrated by lantern slides, Mr. Councillor Wigham; March 29th, special lecture, subject to be announced.—G. W. FALLAS, T. H. MOUNTAIN, *Hon. Secs.*

— **CINERARIAS AT THE DRILL HALL.**—Mr. Douglas writes:—"I am credited on page 199 as having been awarded a silver Banksian medal for my collection of *Cinerarias* exhibited at the meeting of the Royal Horticultural Society on March 9th. This is an error. My card states that a silver-gilt Banksian medal was awarded to the collection." [According to the official list which we have before us, Mr. Douglas was awarded a silver Banksian medal. The error is therefore not ours but the Society's.]

DEUTZIA GRACILIS.

AMONGST our beautiful spring-blooming greenhouse plants there are few more charming when in bloom, or more easily forced than *Deutzia gracilis*. It is a plant which no grower of flowering plants, and especially greenhouse plants, should be without, for it is an easy matter to have it in bloom from January to June if a sufficient quantity of plants are in hand to keep up a succession, and these have been well attended to the previous summer in the important matters of watering, feeding, and the ripening of the growths. *D. gracilis* is an easily managed plant, and responds readily to good treatment, and will even bear some neglect, but it is often called upon to stand too much, particularly when out of flower. Neglect of watering, or giving an insufficient quantity, is the most general error committed; inadequate feeding is the next; and when these two errors are combined the result is that the straight young shoots, which the plants have probably thrown up in abundance in the warm genial atmosphere of a greenhouse in early spring, are robbed of their vigour, and prevented storing up in a gradual lengthening, strengthening, and thickening addition to their parts the needful energy for their future work.

In commencing the cultivation of *D. gracilis* two methods may be pursued. One is to root cuttings and grow them on into plants, and the other is to obtain plants from a nursery, in the spring pot them, and force them into flower the same season. The former method is, however, I think, the better, and the plan of procedure must consist first of all in selecting suitable cuttings. These should be obtained from the base of vigorous plants, and ought to consist of such shoots or suckers which, if allowed to grow on the parent plant, would develop into flowering shoots another year. Their length should not be more than 4 inches or less than 2 inches. Cuttings like these will be sure to root and do well, giving a few flowers the first year—that is, the year following the rooting of the cuttings. Five cuttings may be placed in a 3-inch pot, placing four round the sides and one in the middle, using light soil composed of equal parts of fibry loam, sweet leaf soil, and clean white sand, surfacing the pots when filled, and gently shaken down with a shallow covering of sand.

This serves the double purpose of keeping the cuttings air-tight at their base, thus inducing quicker formation of roots, and as a good guide to the propagator in supplying water to the cuttings, for I have generally found it a safe and reliable rule only to sprinkle or water cuttings when the surface sand is becoming dry. When the cuttings have been inserted and gently watered in, plunge the pots in a mild hotbed, or any place where a slight bottom heat is maintained, covering them with a bell-glass, which should remain over them only until the cuttings are rooted, though it must occasionally be removed to remove superfluous moisture. The development of new leaves from the tops of the cuttings, as well as their erect appearance, will generally indicate that the formation of roots has commenced. The bell-glass may then be daily tilted a little, until it is finally removed.

Up to this stage the cuttings will scarcely have needed any water, except probably a few gentle sprinklings, but now that they have become plants developing roots and shoots, and absorbing more air, water will be needed oftener, and in gradually increasing quantity. When the pots are getting full of roots, or before being root-bound, or matted too much round the sides of the pots, the plants must be shifted into a size larger pot, which will, no doubt, be sufficient for the first season. Every encouragement must be given to induce a strong, vigorous, healthy growth, but no stimulants will be required during these early stages, or the possibility may be that the mixture in which it is growing will be rendered unhealthy, and growth thereby stopped.

Towards the end of the season, when roots are plentiful and the growths ripening, will be the most suitable time to apply a little stimulant, such as a little clear soot water or weak manure water of any kind. Topping the shoots must not be resorted to, but if flowers are not cared about the following spring, it is, perhaps, a little advantage to cut down the plants close to the soil and allow the whole energies of the plants to expend themselves in the production of new shoots for future flowering, instead of dividing these energies in the support of flowers as well as growth. But this cutting down should not be done until the leaves have fallen and the plant is at rest.

The summer treatment of the *Deutzia* is simple but important. The growth of the plant should, as far as possible, be made in the genial temperature of a greenhouse in a light position in the early spring months. When this is completed the plants may be transferred to a cold frame, giving air more and more every day until the lights are taken off altogether. The plants may then be plunged to the rims of the pots, or even below, in coal ashes in a position open to the sun, abundance of air, and plenty of wind, where the growths will be thoroughly ripened by the combined agency of these natural wood-ripeners. The plants should never suffer from want of water during hot weather, which every intelligent cultivator knows is a very important thing.—S.

DEATH OF DR. HOGG.

It is with sorrow more profound than can find expression here that the record of a death has to be inscribed in these pages, in which are largely reflected his life and his work—namely, the death of Dr. Robert Hogg. This took place at midnight of Sunday, March 14th, at his London residence.

Others of his friends and colleagues who have been associated with Dr. Hogg for very many years in various horticultural projects may perhaps more appropriately recount episodes in his career and describe traits in his character. The writer of these lines, however, who has been in almost daily contact with the deceased gentleman for more than twenty years, may be permitted to mournfully acknowledge the loss of one who was to him in very truth a "guide, philosopher, and friend," as he has been to many more during his long, busy, useful, and honourable career.

Though only a disjointed outline can be given of the life of the "dear old Doctor" as he was so commonly referred to, yet it may be said of him that no one has taken a larger share in the various movements having for their object the advancement of horticulture than he during the past fifty years, while it may also be safely said that the Goddesses of Flora and Pomona never had a more loyal subject.

Though learned in the sciences, at least, as they were taught in his earlier days, he was notably and essentially practical, not only in the art with which he was so long and intimately connected, but in the ordinary affairs of life, and his opinions on the various subjects on which he was consulted invariably carried great weight.

In "Men of the Time" we find that "Robert Hogg, LL.D., F.L.S., was born at Duns, N.B., in 1818, and was educated at a private school in his native town." He was the son of Mr. Robert Hogg of Cheeklaw and Bogan Green, Berwickshire, the head of the old firm of Hogg & Wood of Coldstream—famous among other things for forest trees, Leeks, as well as for agricultural and other seeds. The Doctor had no trade interest in the firm, its headship descending to his brother, Thomas Hogg, who died two years ago.

After a curriculum at the Edinburgh University the subject of this memoir came to London by coach in 1836, and was present at Her Majesty's coronation in 1837, a circumstance of which there is reason to believe the Queen has cognizance. The Doctor, who had a wonderful memory of past events, has more than once amusingly told the story of his entry into London. He was in charge of the late Mr. Charles Lawson, the "great" Charles Lawson as he was called. The object was presumably to gain a footing in the London seed or nursery trade. He was the guest of the late Mr. John Noble, who was then perhaps the chief representative of the great seed industry in the metropolis; but he had "no room" for the visitor in his business. Other "houses" were tried with a similar result. At last, calling with Mr. Lawson at Covent Garden, the then renowned fruit nurseryman, John Ronalds of Brentford, was met. "Ah," said Mr. Lawson, "you

are the very person I wanted to see. I have a young man here, the son of our friend Mr. Hogg of Coldstream, and you must take him." "Oh, well," was the reply, "if I must I must, but," and this with emphasis, "I shall only give him 15s. a week." The young Northerner was delighted, as he would have felt it a privilege to get into such a nursery without any remuneration. No doubt there are old friends of the Doctor who have heard him tell, in his quiet deliberate way, how he "started on 15s. a week, because," he would go on to say, with the merry twinkle in his eye, "I was not worth any more." Working diligently he gained a practical knowledge in nursery routine, and became an expert in most kinds of work connected with the raising of trees and the cultivation of fruit. It was during this period until 1845, when he entered into the business at Brompton, that Dr. Hogg, as the result of his travels in France, Belgium, and

Germany, first established those friendly relations with Continental botanists and horticulturists so often renewed in subsequent years by personal intercourse both in England and abroad.

Of penetrating rather than quick perceptions he, after investigating the matter of importations of hardy fruit from Holland and France (there was no American competition in those days); satisfying himself by observation of the prevailing negligence of fruit growing at home, as well as of the general ignorance pertaining to fruit, he resolved not only to make the subject a special study, but endeavoured by strong and effective articles in the press, including several in the early issues of the then *Cottage Gardener*, to arouse interest in and disseminate information on what he believed to be a matter of national importance.

The then young reformer also spent some time in the West of England, and gave to florists' flowers a large share of attention, especially, perhaps, Dahlias and Tulips. On the former he wrote a treatise, and in his latter days we could not imagine a more difficult

task than trying to convince the Doctor that the modern Dahlias were better than those of forty years ago. He would grant they were larger, but held that size was obtained at the expense of refinement. His old love of the Dahlia does not seem to have returned to him in the same way as did that of the florists' Tulip. These flowers had not changed. The old varieties remained with their characteristics unimpaired, but the varieties were hard to find; the natural persistence of the man, however, asserted itself, and a few years ago he resolved to form a collection.

No distance was then too great for the Doctor to travel to see collections in flower, and to there mark the varieties he wanted with the view to purchasing bulbs. He eventually obtained an excellent assortment, and his life was made the happier by their possession. His Tulips in May were his annual feast, enjoyed with a zest that was pleasant to see, though sometimes disappointing, as when fungus or eelworms feasted on his treasures. But even this imparted interest, for he set himself to discover methods to conquer the enemies, and always looked forward hopefully for the result of his endeavours.

His first Tulip prize was won when he was in the West, and he

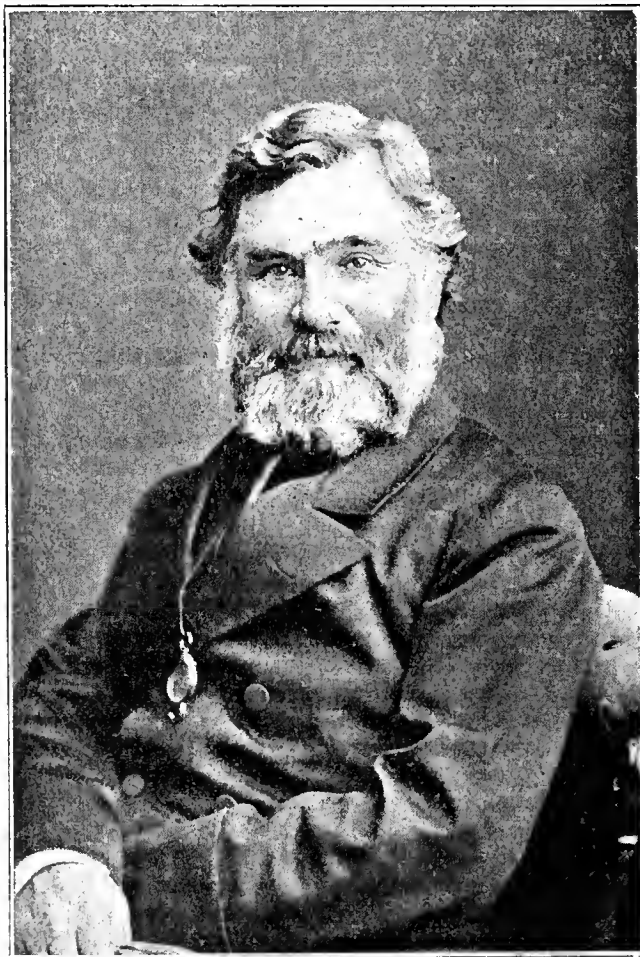


FIG. 51.—DR. ROBERT HOGG AT THE AGE OF 56.

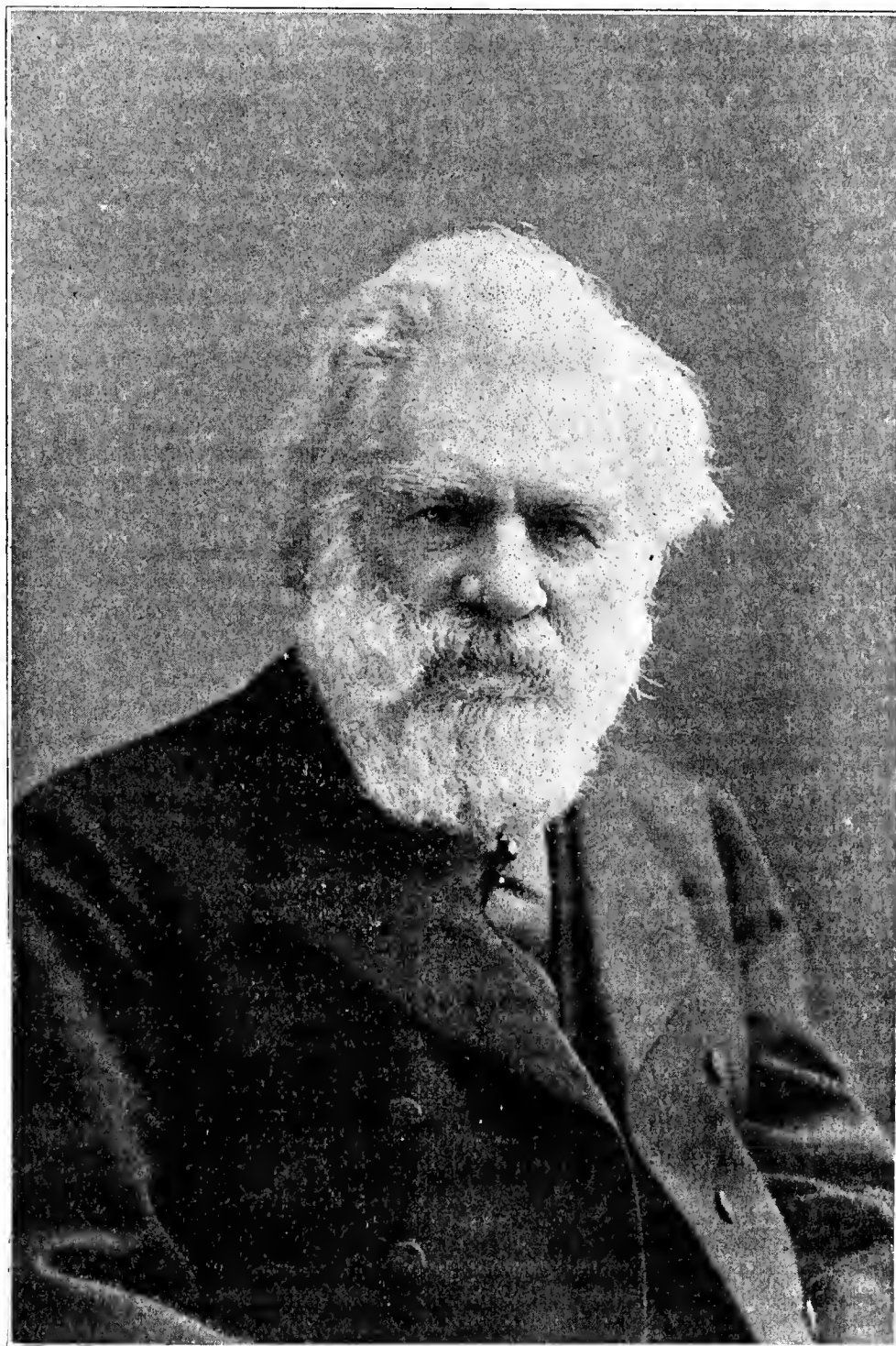


FIG. 52.—DR. ROBERT HOGG AT THE AGE OF 78.

never forgot it. Seeing the schedule of a Tulip show, and noting a laxity in the regulations, he decided to put a doubtful point to the test. He visited a collection of varieties so far advanced in flowering that the colours enabled him to choose the more promising. These he purchased, had the plants carefully dug up there and then, also as carefully planted on a site in his possession. Under the best attention they suffered little, and in the course of a few days he cut the blooms and won the first prize. Then came the contest as to his right, but it was decided in his favour. Though very markedly and emphatically a man of peace, when Dr. Hogg was face to face with a difficulty he was the reverse of easy to overcome.

Returning to the fruit, the young pioneer became a partner, by purchase, with Gray & Adams, in the long-famed Brompton Nursery at Kensington, in 1845; and the business of Gray, Adams, & Hogg was continued till the dissolution of the whole concern in 1851. This nursery was established in 1681, but the site became too valuable for growing fruit trees, and it is now occupied by the South Kensington Museum, Imperial Institute, with other National buildings; and it may be interesting to note that the Exhibition Road is on the site of the main thoroughfare that passed through the Brompton Nursery. The changes brought about since the Doctor's manhood seem little short of marvellous. The region of Belgravia, now covered with magnificent buildings, was during the same period devoted to market gardens, and there the Doctor, on the south side, built himself his London home.

Continuing to devote himself assiduously to his favourite study, Dr. Hogg produced "British Pomology" in 1851, a work in which is enumerated 940 Apples, and it was translated into German. It was in due time superseded by the "Fruit Manual," of which it formed the basis, this developing into a large work, which has passed through five editions, and has been several times translated. Its author had of recent years prepared a great amount of MS. for a sixth, which it was his intention to have produced, with assistance, had he been spared to regain health.

In the interval between the dissolution of the Brompton partnership and 1855 Dr. Hogg was associated with his father-in-law, whose premises occupied the site of what is now known as the Charing Cross Railway Station. His mind, however, was not of that unimaginative order which takes kindly to the calculating ways of business, and his leisure moments were ever devoted to the pursuit of botany and horticulture in some of their forms. These excursions led to his acquaintance with Mr. G. W. Johnson, a barrister, whose scientific leanings had prompted him to forsake the thorny paths of the law for horticulture, and who had established the *Cottage Gardener* in 1848. This paper was at first printed at Winchester, where Mr. Johnson lived, and published in Paternoster Row; but in August, 1860, the whole was removed to London. Mr. Johnson alludes to the advent of Dr. Hogg in the preface of the half-yearly volume in April of 1855 in his peculiarly genial way:—"Every seventh year is said to be an eventful year in the life of periodicals as well as of men. It has been an eventful year to us. The barque has partly changed owners, but the same hand is at the helm, with a friendly helmsman at his side to aid, to relieve, and to strengthen." The new helmsman was Dr. Hogg, and the two shipmates worked together like brothers till Mr. Johnson's retirement in 1879.

This gentleman died in 1886, and soon after that event Dr. Hogg became, by the purchase of his late colleague's share in the property, sole proprietor. But long before that (in 1861) the paper was invested with a new title. The change came about in this way: The *Cottage Gardener* grew beyond original anticipations, finding its way into most of the leading gardens in the kingdom. The character of its matter gradually changed accordingly, and the "Quarterly Review" said "the *Cottage Gardener* was for the occupiers of a cottage to which a double coach-house was attached." The proprietors took the hint, and changed the title to the *Journal of Horticulture*.

In 1858 he produced the "Vegetable Kingdom and its Products." This work must have involved great labour and research, as it contains an enumeration of 7000 genera and 4000 synonyms, representing about 100,000 species of plants. He was also the co-author with the late Mr. G. W. Johnson of the "Wild Flowers of Great Britain," published in eleven volumes.

Dr. Hogg was the originator of the British Pomological Society, which, with the co-operation of Sir Joseph Paxton (President), Mr. Spencer of Bowood, Mr. Thomas Rivers, and others, was founded

in 1854. He was first one of its Secretaries, and subsequently Vice-President. Monthly meetings were held for five years—in fact, until the Royal Horticultural Society became established at South Kensington. This great scheme was decided upon in 1859; but though the Doctor was so doubtful of its security as an investment as to "urge on all to whom money was a consideration to consider very seriously before sinking a penny in the concern," yet when it was finally adopted he accepted the position, and did all he could to make the great speculative project (in which so much money was ultimately lost) a success. With this object in view he took the initiative in transforming the Pomological Society into the Fruit Committee of the Royal Horticultural Society. Dr. Hogg was really the father of this the senior Committee of the Society, and the Floral Committee speedily followed.

Dr. Hogg was during the year 1865 zealously engaged with other earnest men in laying the foundations for the Great International Exhibition and Botanical Congress which was held in London the following year. The idea originated at a congress in Brussels in 1864, when the British representatives desired to invite their continental brethren to London, and a subscription was opened there and then. Amsterdam followed Brussels with a great gathering in 1865, and on the return of the British contingent it was determined to carry out the London proposal, and in a very short time £4200 was subscribed or guaranteed. Dr. Hogg was appointed General Secretary of this great project, and became intimately associated with Dr. Masters, who was Secretary of the Congress and foreign correspondent. The two Doctors who then worked together so amicably remained close and attached friends through all the following years till the elder was called away. Unfortunately this happened before a graceful tribute could be presented, the outcome of a happy thought and spontaneous endeavour of Dr. Masters.

In 1869 Dr. Hogg was appointed Official Commissioner of the Royal Horticultural Society to attend the great International Exhibition held at St. Petersburg during May of that year, his co-delegate being Mr. Andrew Murray, Sir Joseph Hooker representing British botany on the occasion. At the conclusion of the Botanical Congress the Emperor Alexander II. made known his wish to Dr. Hooker and Dr. Hogg to confer on them as a distinction for their services the Cross of the Order of St. Ann, but as the British Government did not permit its subjects to receive foreign distinctions His Majesty regretted he could not carry out his design. He commanded, however, the preparation of a malachite table and signet ring, which were sent to Dr. Hogg as a memento of the visit.

For thirty years and more Dr. Hogg gave to the Royal Horticultural Society loyal and even strenuous support, so long as he was convinced that a genuine horticultural policy was being pursued. When, however, he believed the reverse was the case he was a formidable antagonist, and thought nothing of driving all over London to pick up Fellows whose votes he could rely on for the purpose of turning out a Council whom he had reason to believe was out of sympathy with the objects for which the Society was established to promote. But for him and other earnest men the whole of the Chiswick Gardens would have been lost to the Society, and it was only by the most determined and persistent efforts that the establishment as it exists now was retained.

When the Society was remodelled in 1860, and the Committees formally established, Dr. Hogg was appointed Secretary of the Fruit, and Mr. Thomas Moore of the Floral Committee. The Council, as the Doctor wrote, "Was composed of men not chosen because of their social position only, but, combined with that, men of sound practical knowledge, sagacity and energy; and it was only with such men as its councillors that the Royal Horticultural Society could flourish." Prophetically true those words proved to be. In the course of time a non-horticultural pleasure-seeking Council of South Kensingtonians obtained power and brought matters to a crisis in 1875, adding a new debt of £5000 to an old one of £50,000. Lord Bury, the President, was then compelled to resign, and a Horticultural Council elected, including Dr. Hogg, who succeeded Mr. Lindsay as Secretary, and occupied the position during the most critical period of the Society's career. In recognition of the welcome change the chief nurserymen joined in making a great commemorative show, gratuitously, which was held on July 21st of the same year. It was composed of the finest and rarest plants, and their

artistic arrangement afforded a magnificent spectacle, giving a great impetus to extension of the now familiar classes of "groups of plants arranged for effect" at most exhibitions.

Dr. Hogg only retained his position as Honorary Secretary of the R.H.S. for a few years, and was succeeded by Major Mason, but continued on the Council till his resignation in 1889. Dr. Hogg remained a member of the Fruit Committee, and was thus closely connected with the Royal Horticultural Society for thirty-seven years. He watched with increasing pleasure the growing prosperity of the Society during his latter days, and had the fullest confidence in its Council and officials who have done so much for its advancement on true horticultural lines.

He provided for the Society the great collection of Pears which Mr. Barron grew and trained so well, many of the sturdy pyramids still remaining. Dr. Hogg also collected during one of his continental visits the present splendid collection of Figs at Chiswick, probably the finest assortment to be found in any garden in the world.

After the death of Mr. Johnson Dr. Hogg took a very small share in the editorial conduct of the Journal, and during recent years practically none. He had enough to do, and often more than enough, in the business department, and more than a year ago he relieved himself of all responsibility in favour of his son, Mr. R. Milligan Hogg, who then became the proprietor; but his father's honoured name remained till the last at the head of the *Journal* in the place it occupied for upwards of forty years, and all connected with their revered chief regret that it could not have continued for many years more.

When Dr. Hogg's actual retirement became known, which was some time after the event, his distinguished friend made his desire known in a confidential way to collect the portraits of such of Dr. Hogg's friends and associates as he could obtain (apart from the staff of the Journal) for presentation to him in the form of an album. It was to have been a surprise presentation, and the secret was so well kept that not one out of the hundred who so readily contributed photographs made the fact known. Dr. Masters, feeling the time was short, acted with all possible speed, but those in whose hands was placed the preparation of the album failed to complete it by the date expected, and which would have been just in time for acceptance by its intended recipient; but as the end was evidently approaching, and before the strong brain became clouded, the dear old Doctor was informed of what was in progress, and smiled in grateful recognition of an act as graceful as friends could bestow, and than which none could have been more deeply appreciated by a naturally warm heart. The memento will be treasured by the family in memory of the revered head.

All who enjoyed the intimacy and friendship of Dr. Hogg will admit his warm geniality. They will not soon forget the heartiness of his double handshake in taking and holding their hand in both of his; while all who have worked with him and under him will feel the impossibility of having a more kind and considerate colleague or chief. He has been a good friend to many by placing not a few gardeners in excellent situations, and assisting many more in sickness and adversity—not unfrequently in a way by which they could not know the source of the aid of which they were grateful recipients.

Dr. Hogg was an old supporter of the Gardeners' Royal Benevolent Institution. He became a subscriber to its funds in 1842, occupied the chair at the Anniversary Festival Dinner in 1876, and was for many years a Vice-President and Trustee. Mr. Ingram writes:—"The Institution always occupied a warm place in his heart, and it will greatly miss his interest and support."

When Dr. Hogg was well he spent all the time he could spare on his Sussex estate. He was rather fond of building. He first erected a large house, and formed and planted the garden. This, as his family dispersed, became too large, and he built himself another, forming another garden, planting collections of fruits, hardy trees, and shrubs, also hardy flowers. He was always his own architect and landscape gardener. He really built himself four considerable sized homes, and also found occupation in erecting and repairing cottages. This was his relaxation when in health; but eventually his strong constitution became undermined by oft recurring and increasingly serious attacks of gout. His recuperative powers became less and less, and for about three years he seemed to have been getting slowly but surely weaker. He was more or less an invalid during the whole of last year, and towards the end of it unable to leave his house.

When last seen by the writer a month ago in his library he was very feeble, and there was something in the long retention of the hand in both of his that seemed premonitory as he said, "Ah, Mr. Wright, if I *should* live to get out in the spring the sun and the flowers would do me good." Then a pause and penetrating glance, and in voice more firm, "But you know I have had a good innings. I have much to be thankful for, and *am* thankful I assure you, and shall be whenever I may go to sleep."

His look of resignation was impressive, and an affectionate "Good night and God bless you" closed this last interview with Dr. Hogg. The portrait (fig. 52) represents him much as he was then, age nearly seventy-nine; that in fig. 51 when he was in the matured prime of life, age about fifty-six.

His last days were as he and all his friends would wish—painless and calm, deepening to the end. This end seemed the embodiment of Richard Le Gallienne's lines, which appeared a few weeks prior to the memorable event:—

Soft sleep, sweet sleep; a little soothing psalm
Of slumber from Thy sanctuaries of calm.

* * * * *

Of all Thy good, great Lord, deep sleep is best.

About the time when many of our readers will be perusing this memoir the funeral cortege will be at the station of the London Necropolis Company, preparatory to leaving Waterloo by the train for Brookwood Cemetery, Woking, at 11.30 A.M.

As we are preparing for press we receive the following communications. Rev. H. H. D'Ombra writes:—"To what a large circle of earnest and sincere friends will the news come, filled with deepest regret that the valued and much-loved Editor of the *Journal of Horticulture*, Dr. Robert Hogg, has closed his honourable and useful life! Among the number of horticulturists of the present day there is no one whose name has been more before the horticultural public, and no one whose memory will be cherished with deeper feelings of affection and regard. Associated as I have been with him for the last five-and-thirty years, I long ago learned to respect him in the various ways in which I was brought into contact with him. A man full of wisdom, penetration, and courage, ever taking sound views of things happening around him, intercourse with him was always full of teaching and information, while his genial disposition always evinced itself in his kindness of expression and ready sympathy.

"All the readers of the Journal know full well how all his excellent qualities have impressed themselves on the paper over which he for so many years presided, and so in his private life it may well be believed that the ties of affection strongly knit him to those dear to him. Others will doubtless be willing to enter more fully into such details as may interest the public, but I could not forbear from giving my testimony to the memory of one whom I have always regarded as a sincere friend, and whose death leaves a blank which it will be impossible to fill."

Mr. L. Castle writes:—"By the lamented death of Dr. Hogg a noble mind is no longer at the service of the world. Many will hear the tidings with the heartfelt sorrow that attends the loss of a dear friend. A gentleman in spirit and deed, he set up a high standard of conduct even in the most ordinary everyday affairs. Extremely painstaking in his own work, one of his characteristics was that thoroughness which is so essential in life, and the possession of this quality by others was the surest passport to his regard. Such a man must leave his impress for good upon his contemporaries, helping to mould the thoughts and acts of many. Friends and associates who fully realise the loss sustained have still the great satisfaction of looking back upon 'a life well spent.' Long and varied experience, keen and critical observation, aided by a retentive memory, had furnished the Doctor with an encyclopædic knowledge, especially on horticultural matters, which those who have ever had the privilege of listening to his reminiscences could duly appreciate. The powers of his mind are well shown in his works; and the 'Fruit Manual,' which is a monumental work of close observation, with careful analysis and classification, is without a rival in the English language, and with it the name of Dr. Robert Hogg will go down to posterity as the foremost authority on fruits of the Victorian age."



LE CHRYSANTHÈME À LA GRANDE FLEUR.

WE noticed this excellent French work when the first edition was published twelve months ago. A second issue has quite recently appeared, and in every way equals the previous one, for the printing and illustrations are in the same style and the contents are the same, although to an extent augmented by the inclusion of additional matter.

SHEFFIELD CHRYSANTHEMUM SOCIETY.

THE usual monthly meeting of this Society was held in the Society's rooms on the 10th inst., when a good number of members attended to hear a paper on the "Pelargonium," by Mr. J. Dixon. Mr. F. W. Littlewood presided. The exhibits for the month were pot plants in bloom for professional members, and cut blooms in the amateurs' section. A few days prior to this meeting the Society held its annual concert, which was followed by dancing. The fixture was arranged some years ago to enable the wives and families of the members to have one evening in the year in which they could show their appreciation of the Society, and enjoy a social evening together.—J. H. S.

A TOUR ABROAD BY A HAPPY TRIO.

(Concluded from page 155.)

AT Sheffield, on Saturday at Ghent, on Tuesday at Paris, and on Wednesday travelling north as fast as express could carry him to Edinburgh, or, in other words, finding himself in five different countries for Chrysanthemum purposes in the short space of about a week. That was the experience of Mr. H. J. Jones. His first visit to the Paris Chrysanthemum show impressed him to such an extent that in his heart he would much rather have remained with us than gone on his way alone to the land of cakes and ale.

We turned our footsteps towards the show the second day. Long before midday the President of the Republic, Mons. Felix Faure, came again to visit the display, and was much more fortunate than on the previous afternoon, when the crowd was so dense. Almost everybody of note in the French Chrysanthemum world was present, and it was a very pleasing part of the day's work to shake hands and chat pleasantly, if only for a few moments, with many men who were hitherto known to us only by name.

It is worthy of note that about twelve months previously the National Horticultural Society of France organised a special Committee to watch over the interests of the Chrysanthemum, and that the Committee has accomplished much useful work. The broadness of scope will be understood when I say that this Committee is not confined to members of the Society, but that outsiders who are distinguished in any way for their knowledge of Chrysanthemum matters are admitted as associated members without payment of any subscription. A periodical publication is issued at intervals containing reports of the work of the Committee and circulated gratis among the members, so that those living at a distance may know what is being done. Of this Chrysanthemum Committee Mons. Aug. Nonin is the President, and an enthusiastic grower of the flower. He was a large exhibitor, and was the winner of the Grand Prix d'Honneur, a work of art offered by the President of the Republic for a most interesting group arranged with three semicircular sides in one of the rooms.

The Paris Show may be considered a thoroughly representative one of French Chrysanthemum growers, for exhibitors were not confined to Paris and the environs, but came from all parts of France. A very full display of new seedlings as yet undistributed was made, and these were dealt with by one section of the jury specially charged with the work of examining them and granting certificates to those of exceptional merit. The following day we also spent in the Show, completing our notes and making more new acquaintances. In the evening we were due to dine with Mons. Martinet, the editor of the "Jardin," at his home on the Boulevard St. Germain, where in company of himself, Madame Martinet, Mons. Ernest Bergman, and Mons. Dubois, we passed one of the pleasantest evenings during our stay abroad. The kind hospitality of this genial French journalist and his charming wife, combined with the bright conversational powers of Mons. Ernest Bergman, will long remain in our memory as one of the many enjoyable reminiscences of our journey.

Our stay was now over so far as Paris was concerned, and we decided to push on the following morning to Amiens. The rain when we left Paris at midday was descending in torrents, but within a short time of our departure it ceased, and we completed the journey beneath a beautiful blue sky and bright sunshine flooding the landscape all along the line of route. Doing this part of the journey by daylight was almost the first since we left England, and it was pleasant in the late autumn to see the well wooded country with the trees, mostly Silver Birch, Oaks, Beech and Poplars, still clad with foliage of golden bronze and russet hue. Women were working in the fields, ploughing in several cases being accomplished with the aid of oxen. The ground was beautifully undulating and interspersed with many a winding stream, and here and there a château in the distance.

On arriving at Amiens our first business was to secure our rooms, and

then make inquiries as to the Chrysanthemum show, which was advertised to open on the following day. The Hôtel de Ville, we learnt, was the place in which it was to be held, and so away we went to learn what we could as to the hour of opening. We found the Secretary and others all busy at work, and, explaining the object of our visit, were given every facility and a free pass for the following morning. There was but little variation between that and the one at Paris so far as the leading features were concerned, although, of course, it was on a much smaller scale, and the average of cultivation was not so high. The show was held in three separate rooms on an upper floor, and the exhibits consisted largely of groups of pot plants, although cut blooms were duly provided for.

Mons. Catelain, the Vice-President, Mons. Emil Roussel set up some good groups, and the varieties shown were on the whole fairly well known to us, although there certainly appeared to be a large number among them of only local repute. Cut blooms were staged in good form by Mons. Anatole Cordonnier. Most of the other exhibits were much smaller in size, and rather rough in finish.

Our mission was now over, and our way lay homeward. Before leaving Amiens we strolled round the town, and of course paid a visit to the Cathedral, one of the most imposing in Europe, and built about 600 years ago. We obtained a glimpse of several other large buildings, the Museum, Palais de Justice, the Library, Hospital, and the like, and then caught the Calais express at half-past one. Another beautiful day, almost summer-like; but as we got further north the sky clouded over, and when we reached Calais it was leaden in colour, and a fine drizzle falling. This part of the country is flatter and of less interest. We passed through many a quaint old village, and noticed that large numbers of the cottagers were bee-keepers. Heaps of Beetroot for sugar lined the railroad in some places for a great distance, and as we got further cattle and sheep were grazing in large numbers, and the well-wooded, hilly country looked as prosperous and as well looked after as could be wished.

Once again we were on board the steamer, and after a short passage across the Channel found ourselves in old England, with nothing but pleasant memories of the many kindnesses that we had received from our continental friends wherever we had been.—C. HARMAN PAYNE.

THE YOUNG GARDENERS' DOMAIN.

NOTES ON VINES — THRIPS AND RHEUMATICS.

I THINK "Student" has mistaken my meaning. We always damp down with liquid manure, as ammonia from it helps to keep Vines free from red spider and thrips. I did not wish in my former article on Vines to convey the meaning that the small amount of ammonia from damping down with liquid manure would kill red spider, is used as a preventive, and it is also good for Vine foliage I believe.

No, "Student;" I know too much about red spider and thrips to think you could clear a house of them so easily. I used to think constant syringing would kill thrips on Peach trees, or, if not, according to Miss Ormerod, they would take rheumatics from the damp and die. Last year I saw a house of Peach and Nectarine trees in a bad state with thrips, and too open in the roof for fumigating. Syringing was resorted to three and often four times a day, and the floor kept constantly damp, yet the thrips increased, and few died from rheumatism I think.

Bending Vines down before starting to check the flow of sap to the top buds, and strengthen the bottom ones, is another old belief exploded, as so many are in gardening, as in everyday life. Exploded fallacies is a subject on which much could be written and many anecdotes related. Well do I remember the look of astonishment on the face of a gardener of the old school who saw me watering Ferns with liquid manure, his views and those practised in his young days being "give no manure to plants potted partly or wholly in peat."

Surely there must be a mistake in the editorial footnote to the article by "H. H." on "Vine Pruning," in the issue of January 14th, where it is written Barbarossa is a pale red or grizzly coloured Grape. This and Gros Guillaume may, like Cooper's Black and Gros Maroc, Bowood Muscat and Muscat of Alexandria, be too much alike in some places to be shown as distinct Grapes. Gros Guillaume is a black Grape, and carries a fine bloom when well finished. The late Mr. W. Thomson of Clovenfords said it was a noble looking and valuable Grape, a good keeper; when finished jet black. The "Fruit Growers' Guide" gives the colour as deep purplish black, and carries a fine bloom.—W. T., Ireland.

[Both the late Mr. Thomson and the "Fruit Growers' Guide" are correct in the references to Gros Guillaume, but the remarks would be quite wrong if applied to Barbarossa. Dr. Hogg has recorded in his "Fruit Manual":—"The Grape which has been grown in this country for some years under the name of Barbarossa is a totally different variety. Its correct name is Gros Guillaume, and it is black; the Barbarossa is, as its name implies, a rose coloured or grizzly Grape." "W. T." is not fortunate in his first tilt with the Editor, who wishes him better luck next time. Will he and all correspondents who refer to published articles oblige by always quoting the pages on which they appear?]

POLYANTHUSES AND PRIMROSES.

THESE spring flowers at this time of the year give a bright appearance to beds and borders. Plants should be raised from seed annually, but not treated as annuals beyond the annual sowing of seed.

By sowing the seed as soon as it is well ripened, and pricking off the

seedlings into frames shaded from the bright sun, they are generally strong enough to plant out the same autumn. The seed may also be sown early in the spring in drills about 6 inches apart on a south border, and when the plants are large enough planted direct from the seed bed.

The plants usually flower well the first spring, but far better the second, when the plants seem to be at their best, for from that time, whether lifted or replanted, they almost always begin to decay, especially in hot and parching weather; but when the summer is cool and moist the plants stand fairly well. The decay may sometimes be avoided by taking up the old plants, pulling each crown off singly, and planting in fresh soil; but it is far the simpler plan to raise a fresh batch each season.—J. B., *Eastnor Castle Gardens*.

VINES AT PENRHYN.

I HAVE read with considerable interest Mr. Craven's note on Vine pruning at Penrhyn. Having often heard of the grand Grapes produced on these old Vines (faggots, as he calls them), I venture to ask a few questions. He says Mr. Speed is constantly working in young wood from bottom to top—a sort of compromise between long rod and spur pruning. Do I understand Mr. Craven to say that several short canes are run up annually at intervals of the forty-year-old rods, fruited, and cut away again? I would also ask if the borders in which these veterans are growing have been renewed during that time, and if the vigour and longevity of the Vines is not due more to the new borders than to the system of pruning? Mr. Craven truly remarks there is food for reflection, and I feel I shall not have written my first Journal note in vain if we get an answer from such experts as Messrs. Speed and Craven on Vine culture.—STONE, *Warrilow*.

[Written very well, too. It is better to write briefly and well, than lengthily, but indifferently.]

GLOXINIAS.

HAVING read "Youngster's," and "W. P.'s" treatment of Gloxinias, I think "W. P." is rather hard on the former. I quite agree with "Youngster" in moving the seedlings as early as possible, as otherwise they are liable to damp off, and surely "W. P." must be dreaming when he says Gloxinias will not rest in a cool greenhouse from which frost is excluded. I find the corms are more sound, and start into growth more strongly when kept in a cool house, and do not shrivel as they do when kept while resting in a high temperature. They do well when started in a vinery at a temperature of 50°, and grow sturdily. As they increase in growth we remove the plants to a fernery with a temperature of 60°, where they bloom abundantly.—GLOX.

WHILE thanking "W. P." for so kindly criticising my article on Gloxinias, which appeared on page 144 of this Journal, I will venture to say a few words in support of the method I recommended. Firstly he remarks, "Youngster" seems inclined to deplore the fact that Gloxinias are not largely grown. In answer to this I shall point out that I inferred they were not so largely grown as their easy culture and great usefulness merit. They are generally grown, but not largely in the majority of places. As regards the early pricking off much may be said in favour of the system. Perhaps "W. P." has not paid a visit to the nursery of a leading Begonia grower not a hundred miles from Forest Hill, or to one where Gloxinias are raised annually by tens of thousands in the early spring. If he has he will have seen lads just left school standing at benches by the half dozen, busily engaged with prong in one hand and pointed stick in the other pricking off the seedlings in exactly the same manner as I have described. Moreover, what tender-rooted seedling does not benefit by an early removal from the seed pans, especially those which are tuberous or bulbous rooted?

Again, "W. P." writes, a cool greenhouse would not be a suitable place in which to store the corms during the resting period. What does he call a cool greenhouse? My idea of such is one which is kept at say 50° at night from November to March; if kept in too high a temperature watering will often have to be resorted to to prevent the corms shrivelling. I have seen them wintered safely in a late vinery where just enough heat was maintained to exclude frost, and that with good results.

"W. P." may also observe that I did not recommend starting the corms in a temperature of 50°; what I said was it should not fall below that at night. The temperature he advises would in my opinion be a very suitable one in which to start them.

As regards compost, "W. P." has undoubtedly had good results from plants grown in his mixture, so also have I from plants grown in mine. Opinions differ, but I think if twelve gardeners were asked to give their opinion as to what soil to use for potting Gloxinias, six would probably favour one and a half dozen the other. "W. P." also says soot is best used in liquid form. True; but it is a well-known fact that soot is such an excellent purifier that I am still of opinion that a small quantity mixed with the compost cannot do otherwise than benefit the plants if used in a judicious and careful manner.

As regards numbers "W. P." says we grow them by the hundred. I may add that our numbers reach almost into thousands. With all due respect to "W. P." I venture to think that after he has carefully read my article once or twice more, he will not be quite so much surprised after all at the method of culture recommended by—YOUNGSTER.

PRUNING.

I READ with much interest "Sylva's" article on "Tree Pruning," page 151. It is to be feared his words are very true as regards young gardeners not studying arboriculture. It is hoped we shall take his gentle reminder in the right light, not as criticism, but advice. We must make his subject a study, and continue until we master it. Given a young man in a good garden, where both forest trees and Coniferae are well cared for, what scope there is for instructive observation. We may see an isolated specimen growing in all its natural beauty; what an object lesson it is!

Let us pass onwards and out of the pleasure grounds, and take a walk along a country roadside; we may then find a tree of the same variety lopped beyond recognition. Again, we may see a clump of trees, each one perfect, as it were, in its own symmetry. Has it ever occurred to us what care was bestowed or what protection given when young by some perhaps forgotten fostering hand, or with what foresight each one was pruned and thinned? I think not, at least to the majority of us. Do not let it be thought I want to launch as a critic; on the contrary, "Sylva" has made me feel my own weakness. His words have struck very deep; may they do so in others.

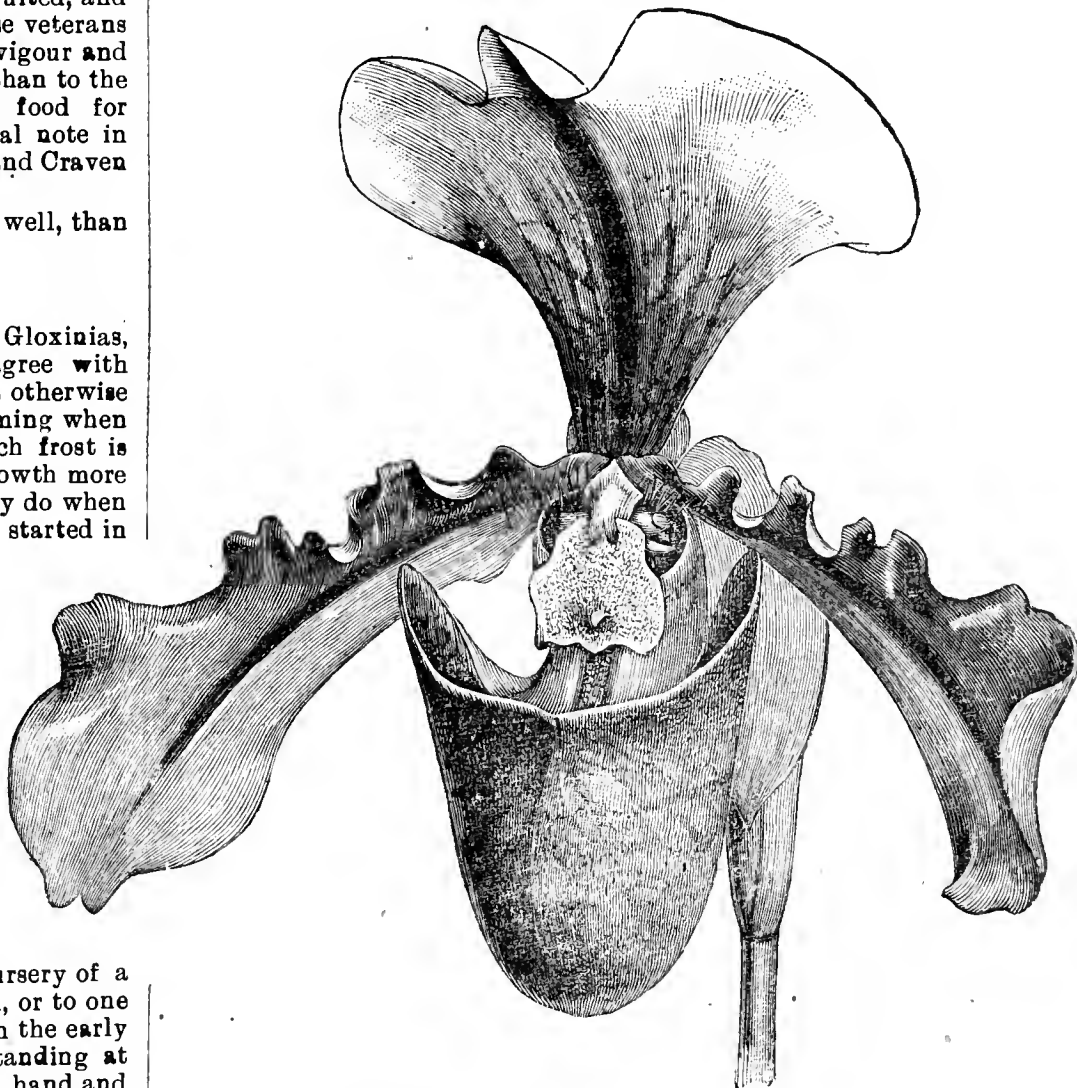


FIG. 53.—CYPRIPEDIUM LATHAMIANUM. (See page 226.)

Young fellow gardeners of the domain, and those who may read these few words, let us make this subject one of our greatest aims; let us try and place ourselves even beyond the gentle hint of one-sidedness. Leave the glass houses for a time, pass through all the grades of our profession onwards and upwards to the top. We may perhaps develop false leaders in our course, as the trees spoken of by "Sylva;" let us at least sever them before they go too far. We might notice the distances of various trees, their respective heights and situations, so that in time to come, if called upon to do such work, we shall benefit by the lessons thus afforded.—SEMPER.

CARNATIONS.

THESE flowers are now in the front rank. They are good for cutting and last a long time in water; their long stems make them very useful for vases, while their fragrance is second to none. If grown in beds the hoe should be run through the surface frequently, as it prevents weeds and keeps the surface of soil from cracking in dry weather. When the flower stems appear they should be neatly staked; some prefer wires because they are not so conspicuous.

About the first week in August the "grass" ought to be layered; the layers will root in about a month. In October the plants may be carefully taken off and transplanted in new beds, leaving room between the plants for layering the following year. Those not required should be preserved to fill any vacancies that may occur in the spring.

In planting be very careful not to bury any grass, and press the soil firmly round each plant. Good loam suits them best. A sprinkling of soot may be used now and again with advantage.—DIANTHUS.



FRUIT FORCING.

Cucumbers.—Winter fruiterers will require frequent attention for removing exhausted growths and bad leaves, thinning where too crowded in order to encourage a free growth and a successional supply of clean, straight fruit. Stop the bearing parts two joints beyond the fruit, and secure the growths to the trellis. It will much invigorate the plants by removing a little of the surface soil where it can be done without injuring the roots, supplying a top-dressing of turfy loam with a sprinkling of approved fertiliser. When the roots are active in the top-dressing sprinkle a few sweetened horse droppings on the bed occasionally, with a light dusting of soot—a small handful per square yard—alternating with the fertiliser so as to get plenty of vigour in the plants and colour in the fruit. If that is not enough, and the plants crop heavily, supply liquid manure of a nitrogenous nature, such as nitrate of soda, at the rate of half an ounce to a gallon of water, always having the water or liquid equal in temperature to that of the mean of the house.

Young plants will need more soil, adding to the hillocks or ridges as the roots protrude, always having it warmed and in a properly moist condition. Maintain a night temperature of 65° to 70° when mild, 70° to 75° by day from fire heat, keeping through the day at 80° to 90° from sun heat, closing early in the afternoon with abundance of moisture so as to run up to 95° or 100° on bright days, securing a steady bottom heat of 80°.

Manure-heated pits and frames which have been set to work some weeks will require good linings. This is best effected by removing as much of the outside of the beds as can be spared, and if the heat has not much declined it will suffice to line one half of the bed at once, deferring the other half until the heat is again on the decline. To be effective the lining should be 2 feet wide, for thin linings are soon spent, and sooner require renewal. Look carefully to the frame after the heat generates in the lining to see that there is no accumulation of rank steam, preventing it by a little ventilation, especially when the sun shines. Add more soil as the roots spread on the surface, taking care to have it warmed. Attend to training and pegging the shoots, not overcrowding them; pinch the leaders a foot from the sides of the frame, and stop the laterals one or two joints beyond the fruit. In watering do not wet the foliage more than can be helped, as it is quite soft and easily scorched. A good night covering will be necessary to maintain a temperature of 65° to 70°, though it may fall lower on cold nights. Admit a little air at 75°, allowing the temperature to rise to 85° or 90°, closing before it falls below 85°, and if it rise to 90° or more the day's work will be better, and a good heat stored for the night. The night coverings should be put on by the time the sun is off the lights, say about five o'clock in severe weather, never delaying beyond six o'clock in the afternoon at this time of the year.

Figs.—*Earliest Forced Trees in Pots.*—The very early varieties, such as St. John's and Early Violet, that were started in gentle bottom heat by the middle of November, are now showing signs of taking the last swelling for ripening. Pingo de Mel, Brown Turkey, and White Marseilles, however, are still stationary. They must not be hurried, as this is the most critical time in Fig culture, checks of any kind causing the fruit to fall, and this must be carefully guarded against by maintaining an equable temperature, making the most of fine days for giving air, and closing early so as to secure safe advancement. After the fruit gives indications of ripening water must be withheld; yet, though less water at the roots is necessary, there must not be anything like dryness in the soil. Until the fruit changes for ripening the trees must be well supplied with liquid manure, giving the whole rooting area a thorough supply, and to trees safely passed the flowering stage a thorough soaking of water a few degrees warmer than the bed acts like a charm on Fig-tree roots, especially when a light mulching is supplied of sweetened lumpy manure, as this absorbs moisture when the trees are syringed, and the changes it undergoes attract the roots, whilst a genial vapour is given off highly favourable to the foliage. Syringe twice on fine days, once a day when the weather is dull, always giving the second syringing in time for the foliage to become fairly dry before night. Maintain a night temperature of 65° in mild weather, 70° to 75° by day, and with sun secure a heat ranging from 75° to 85°, closing early so as to raise it to 90° or more, as Figs swell best with abundance of heat, moisture, and light; full exposure to sunshine being absolutely essential to secure high quality. Stop side shoots at the fourth or fifth leaf, not allowing them to become crowded; then, where needed, train terminals forward where space remains unfilled, and it can be done without shading the fruit.

Early Forced Planted-out Trees.—Where the roots are confined to narrow limits, as they should be, use sweet rather lumpy material as top-dressing. This should be moistened as often as it becomes dry, as that is necessary for decay and the evolving of manurial elements, especially ammonia, which in minute quantities and in regular supply has a marked effect on the health of the trees. Syringe the trees thoroughly twice a day, or damp the paths and other surfaces frequently on dull days. Keep the temperature at 60° to 65° at night in mild weather, 5° less on frosty nights, ventilating from 70°, and keeping through the day between 75° and 85° from sun heat, attending to air-giving early, closing with a brisk heat about three o'clock in the

afternoon or earlier when cloudy. The growth is rapid, therefore give frequent attention to stopping side shoots at the fifth or sixth leaf, as these give the best results in the second crop, but avoid too many, for Figs are produced in proportion to the light received; hence where two shoots or more appear rub off all but one, retaining those only that can have full exposure to light, otherwise they will not be sturdy and fruitful. Train terminals and successional growth to replace those reaching the limits and to be cut out after fruiting in their full length.

Late Houses.—Very fine crops of Figs are grown in houses with a south aspect, even when unheated. The trees should be trained down rather than up the roof, as the fruits always face the sun, and are sturdy and fruitful in consequence. Brunswick and Negro Largo, both strong growers and bearing grand fruit, do well under such treatment, planting them at the back of the house, training the trees with single stems up the back wall of a lean-to and the fruiting branches disposed down the roof on a trellis about 16 inches from the glass. In that form it is questionable if there are two finer Figs for cool houses, Black Genoa also affording enormous fruit of highest quality. For general purposes Brown Turkey stands unrivalled, White Marseilles being a fine, large, roundish fruit, and freely produced where there is room. Grizzly Bourjassote is the most constant for delicious flavour, and ought to have heat. For late supplies Negro Largo, Nabian, and Agen are excellent, but these must have heat to ripen the late fruits perfectly. The grand secret in growing Figs is plenty of light and heat, and the principal points in their culture consist in keeping the growths thin, their points always facing the light, and when growing afford generous treatment.

Melons.—To secure a good set of fruit on the earliest plants it is necessary to keep the bottom heat at 80° to 85°, with sufficient moisture in the soil to prevent flagging. Activity at the roots is essential to the fruit swelling, and will not induce grossness unless the soil is surcharged with water; it ought to incline to dryness, so as to arrest growth, which centres the forces on reproduction. A rather dry warm air favours the production of pollen, affording a little air constantly to prevent the deposition of moisture on the flowers. Fertilise the blossoms every day when fully expanded, and stop the growths one joint beyond the fruits. When these commence swelling remove all flowers, earthing the roots by placing warm soil against the sides of the hillocks or ridges, pressing it firmly. Apply water as required, avoid a soddened condition of the soil, sprinkle the floors in the morning and evening, lightly syringing the plants at closing time when the days are bright.

Melons, to swell well, require a night temperature of 65°, or a little more in mild weather, 70° to 75° by day artificially, 80° to 90° from sun heat, closing early in the afternoon, so as to raise to 90° or 95°, even 100° doing no harm provided the atmosphere is moist. If a succession of fruit is wanted in the same house some of the plants should be deprived of the flowers that appear on the first laterals; stopping these at the second joint will cause the sub-laterals to show fruit, which will be several days later and the fruit finer, because the plants are stronger, but quality depends upon the solidification of the growths—their exposure to light and steady supplies of nutrition. Place supports to the fruits in due course to relieve the plants of the weight; pieces of ½-inch deal 6 or 7 inches square, suspended in a sloping direction by four pieces of wire from the trellis answer well, or squares of garden netting fastened to the trellis by four pieces of string may be used. Make additional plantings, press the soil around each plant, shading for a few days if the sun be powerful for a couple of hours in the middle of the day, discontinuing it when the plants become established. Young plants should be grown near the glass in order to keep them sturdy. Sow for succession.

Plants in Pits and Frames.—These require similar treatment to Cucumbers on lining the beds, adding fresh soil as the growth advances and covering the lights at night. Train and regulate the shoots, removing every alternate lateral, and apply water only to maintain a steady growth. Seedlings may be potted singly as soon as they show the second leaves. Seed should be sown to furnish plants for pits and frames as they become cleared of forced Potatoes and Radishes, about five weeks being necessary to secure strong plants for placing out before they become root-bound.

THE FLOWER GARDEN.

Work in Shrubberies.—Shrubberies generally ought now to be put into good order for the season. In many instances the older ones will be much improved by having some of the ugliest overgrown Laurels sawn down to near the ground, others merely require to have some of the branches freely shortened back, while all pay for timely attention in the way of pegging down branches of Laurels, Rhododendrons, and Aucubas especially wherever the fronts are badly furnished. Where extra large Laurels are cut down it will in some cases be necessary to plant a few young bushes, and these will grow and fill the space in conjunction with the branches from old stumps much more regularly than before. Newly formed shrubberies are usually planted much more thickly than is ultimately good for the trees and bushes. Thinning-out ought, therefore, to be freely resorted to, transplanting a portion of the shrubs to where there are more needed being the wisest course to pursue. This work may be continued for another six weeks, always providing it is done well. Nor should pruning be neglected in the case of young shrubberies, as, with the aid of a knife used just now, many plants can be kept within bounds and of better form than if allowed to grow at will. All open shrubberies especially ought to be lightly forked or skimmed over with a spade, this burying much rubbish and presenting a far neater appearance.

Climbers.—The commoner and more vigorous kinds, notably Ivies and Japanese Honeysuckle, are apt to overgrow the rest, and both are

objectionable when in a rough state. When they get too large or coarse it is a good plan to cut them hard back to the wall, or, better still, down to near the ground, the young growths that soon follow being far more ornamental in appearance. Ugly overgrown plants of *Crataegus pyracantha* might also be cut down with advantage, young spreading branches neatly laid in to a sunny wall invariably flowering and fruiting freely. Thickets of Clematises must always be prevented. Those that flower from young growths formed last summer should be only thinned out and lightly shortened back, but the late summer and autumn flowering species, including the well-known *C. Jackmanni*, ought to be freely shortened, the aim being to secure as many strong back growths as possible. These will flower strongly. All lateral growths on *Jasminums* to be spurred back to the old wood, the common sweet-scented white kind flowering on the young shoots, while *J. nudiflorum* will form fresh wood for flowering next winter. *Chimonanthus fragrans*, *Pyrus japonica*, *Pomegranate*, *Myrtles*, and *Garrya elliptica* to have all straggling branches shortened back and leading growths laid in. *Euonymuses* to be similarly treated. *Magnolias* require no pruning, but must be firmly fastened to the walls. *Wistaria sinensis* to be treated similarly to Pears, the flowers being most freely produced by short spurs.

Manuring Roses.—If starved at the roots, Roses need not be expected to grow strongly or produce good solid blooms. They are often located where mulchings of manure would prove unsightly, but even this difficulty can be overcome. The simplest and best plan in most cases would be to carefully remove the soil down to the roots of the plants, returning this after a liberal dressing of manure has been given. The manure being thus covered with soil is well hid from view, that is if the birds can be kept off. It is within easy reach of the roots, and retains moisture much longer than it does when spread on the surface. Those Roses growing against sunny walls stand in especial need of a heavy mulching of manure, and may with advantage also frequently receive liberal supplies of water and liquid manure from the present time and onwards. The least that can be done for those in the open is to lightly work in a dressing of half-decayed manure, this being done directly after pruning is completed.

THE KITCHEN GARDEN.

Celery.—Celery seed is generally sown too thickly, and there must be no undue delay in pricking out seedlings. After the plants are in "rough leaf" and have been exposed to the light and sunshine long enough to make them sturdy, prick them out 2 inches apart in boxes of fine moderately rich soil, and place in gentle heat. Shade from bright sunshine for a week, subsequently raising them to a light position. From these boxes they ought to be transplanted to beds of rich soil on a mild hotbed. If wanted extra good for exhibition purposes in August a few score could be moved out of the boxes, before they press against each other, into 6-inch pots, growing them on shelves in gentle heat till they are nearly large enough for the open. Prepare beds on or even above the level specially for these extra strong early plants. They will grow more rapidly in these than they will in colder trenches, blanching being effected by means of paper wraps. Sow seed now for the main crop. White varieties are the first fit for use, but if the red or pink stalked sorts are slower in blanching they are usually the most solid and the best keepers.

Celeriac.—Those who desire to have a supply of Turnip-like roots for flavouring soups or for use as a vegetable should sow seeds of Celeriac now. Treat the seed and the resulting plants in every respect similarly to ordinary Celery, eventually planting out on the level, roots, not blanched stalks, being wanted. If the ground intended for early Cauliflowers is well manured that crop will leave plenty behind for Celeriac, and will be cleared off in time for the latter to be planted out in close succession without any further manuring or digging being required.

Kidney Beans.—During the hot days of April and May Kidney Beans succeed none too well in pots under the most favourable conditions, and may easily prove unprofitable. Where a close succession is imperative the sowings from this date ought to be in deep narrow boxes, such as may be arranged on walls in forcing houses or on back shelves. It will be found that the soil in these boxes will not dry nearly so quickly as it is liable to do in pots, and if the plants are not crowded they will grow vigorously. Red spider is usually rampant on pot plants, but is more easily kept under with the syringe in the case of plants in boxes. Canadian Wonder or some other equally robust heavy-cropping variety should be sown in rich soil, thinning out the plants severely and feeding well at the roots when they are commencing to crop. Pits and frames are of good service in keeping up the supply of Beans. Raise successional plants in small pots, and plant out in close succession to early Potatoes. Dispose them thinly in rows 15 inches or rather more apart, and keep well supplied with water.

Peas.—Birds and slugs have greatly disfigured and crippled many of the early Peas turned out of pots and not protected. If lines of strong cotton strained over and about the rows are not sufficient protection galvanised wire netting guards ought to be used, taking care to remove these before the plants grow up through them. Peas transplant readily, and if there are many gaps in the rows fill them up. Placing stakes to the plants when first put out is recommended, as they afford a certain amount of protection.

More seed of a good early variety, and with this an approved second early sort, should now be sown, that is directly the ground is in a fit condition for the purpose, the rows to be as far apart as the known height of the varieties and the seed sown thinly. If the market growers' plan of growing Peas without stakes is tried sow the seed thinly in a narrower drill than is desirable in the case of rows that are to be staked,

and in this instance the lines may be from 30 inches to 3 feet apart. Medium height to tall varieties are all suitable for this method of culture, as they do not form much superfluous haulm. The comparatively mild winter has been favourable to the preservation of mice and other garden foes, and Pea seed is particularly enticing to the former. Coat the seed with red lead prior to sowing, or introduce a cat into the garden and let it work for its living.

Lettuce.—Prick out abundance of plants that have been raised under glass. One sowing treated in that way may be made to yield a long succession of hearts in May and June. Some may be forwarded in boxes of good soil, and planted out on warm borders or sunny open positions, and the rest be pricked out in nursery beds, where they can be protected from cold winds and slugs, eventually transplanting the greater portion to well-prepared sites. Sow more seed of Cos and Cabbage varieties thinly in boxes or unheated frames, and also on a warm border. If the latter is a success the plants raised in boxes can be left to grow up thickly with a view to having a supply of tender young plants for cutting and use as a salading.

Seakale.—If the thongs or coarse roots broken off when lifting the plants for forcing have been saved, but are not prepared for planting out in April, it should be done at once. Cut them into short lengths of about 4 inches, taking off a thin slice from the smaller end, and dibble them in, thicker end uppermost, and to their full depth, and in boxes of light soil. Placed in frames, or under glass of some kind, both top and root growth will commence in a few days, and if planted out on good ground by the middle of April, or before leaves have actually developed, an excellent start will have been made. Root cuttings dibbled out soon after being prepared are liable to be preyed upon by slugs, and in any case the plants are not so forward and strong as those resulting from cuttings already growing when put out.

PLANT HOUSES.

Coleuses.—Young plants rooted in pots or pans must be potted singly, those rooted in small pots should be placed into 3-inch. If bushes are required pinch the plants as soon as they commence growing. For many forms of decoration plants with single stems and large foliage are very useful. Where bushes are needed early four or five cuttings may be inserted in each pot, and be allowed to grow on without pinching, and when a sufficient stock has been obtained old plants may be thrown out; they seldom grow freely, and are surpassed by young vigorous plants.

Balsams.—Directly the seed leaves have been developed pot the plants singly. Pot them down to the seed leaves, and when they have started again into growth place them on a shelf where the temperature ranges from 55° to 60° at night. If grown too warm they soon become tall and weakly, failing to branch freely.

Heliotropes.—Plants that flowered during the autumn and have been well cared for since will come into flower quickly if placed in an intermediate temperature. Young bushy plants that have been kept in 3-inch pots may be placed into 5-inch pots; in a temperature of 55° they will commence active growth, and prove useful for decoration.

Zonal Pelargoniums.—The best of those that flowered during the winter are showing buds freely; these will come into bloom in a few weeks if a temperature of 55° can be given them. Young stock should not be introduced into heat before their flower spikes are visible, for they are liable to start into soft growth and then fail to flower. Plants that have been cut back and are commencing growth may have the whole of the old soil shaken from their roots. These may be reduced, and the plants replaced into the same or smaller pots. Water carefully until they have commenced rooting and growing freely. Cuttings may be inserted in quantity for autumn and winter flowering. If inserted in small pots and kept growing they will be useful by the time it is necessary to turn them outside.

Mignonette.—For pyramids and standards to flower in the autumn seed should be sown of Parson's White or Miles' Hybrid Spiral in the centre of small pots. As soon as the seedlings are up select the strongest for standards; three or four may be left in the pots of those that are required for pyramids. Plants that have been in a cool house during the winter may be finally thinned if they are too crowded. It is a good plan to carefully bend over the surface of the pot those that are left. If this is done and the points removed they will break strongly from nearly every joint, and in a short time bushy plants a few inches high with large spikes of bloom will be the result. No attempt must be made to force these plants, they enjoy a cool airy place and a moisture-holding base. Water carefully, do not allow the soil to become dry, or the foliage will turn yellow.

Libonias.—If cuttings are not rooted they should be inserted at once. Those that are rooted should be placed singly into small pots and grown on for a time in heat. When a few inches high the point of the plants should be removed to induce them to branch. If large plants are required two or three plants may be grown together. For this purpose we invariably cut back a few plants and grow them well. For 5-inch pots single plants rooted at the present time are the best.

TRADE CATALOGUES RECEIVED.

Barr & Sons, 12, King Street, Covent Garden.—*Hardy Perennials and Alpines.*

J. Cheal & Sons, Crawley.—*Dahlias.*

Wm. Clibran & Son, Altrincham.—*Farm Seeds.*

Fotheringham & King, Dumfries.—*Farm Seeds.*

Hogg & Robertson, Dublin.—*Farm Seeds.*

E. P. Krelage & Son, Haarlem, Holland.—*Perennials.*

The Surrey Seed Stores, Red Hill.—*Agricultural Seeds.*

THE BEE-KEEPER.

WINTERING BEES.

BEE-KEEPERS who have examined their stocks will now be able to form an opinion as to whether the past winter has been disastrous to their bees. Judging from facts that have come under my notice I am inclined to think the losses will be more serious than usual, as already complaints have been received from various parts of the country. It cannot be owing to the severity of the weather, as no extremely low temperatures have been registered. On the contrary it has been excessively wet, and, as is now well known, dampness affects bees much more than a dry sharp frost.

There are, I think, three chief causes, which are queenlessness, shortness of stores, and excessive moisture in the hives. The former subject has been treated in recent notes, but the two latter would doubtless cause old and decrepit queens to succumb earlier than they would otherwise have done.

Shortness of stores is very common this season, and the cause is not far to seek, as during the late days of spring and early days of summer last year the weather was fine and dry throughout the country; but in the Midland and Northern counties very little surplus was stored. Afterwards a spell of dull showery weather set in, which continued, more or less, until the honey flow was over. By that time the greater part of the stores surrounding the brood nest had been consumed, whereas in ordinary seasons the end combs would have been full of sealed-up stores; the top part of many of the other frames, too, would have been in the same condition.

Although the weather improved for some weeks it was then too late, except in the Heather districts, for the bees to store a surplus. Thus many bee-keepers were deceived in the amount of stores the bees had, and as the autumn was excessively wet bees did not take the food readily that was placed within their reach, so that many colonies of bees went into their winter quarters short of stores, and unless candy has been given to them many stocks are on the verge of starvation. Several that I have examined during the past week are in this unsatisfactory condition.

DAMPNESS IN HIVES.

This is the cause of many colonies of bees being unhealthy, and steps should at once be taken to remedy any defects in the hive. It is surprising how rapidly a stock of bees will deteriorate if from any cause an excessive amount of moisture is allowed to remain in the hive. I have had experience of this on several occasions, and dread it more than anything else in the apiary. In this district foul brood is unknown, which is fortunate for bee-keepers; but next to that disease more stocks are lost from dampness in hives than from any other cause.

This fact should not be lost sight of by all who are interested in the pursuit of bee-keeping. If well-made hives are obtained they are liable to crack and let in the moisture after they have been exposed to the sun in summer and the frost and rain in winter for a year or two. It is therefore advisable to paint them every autumn, which will preserve them in good condition for many years.

If this operation is left until late in the autumn, when there are not many bees on the wing, the hives may be painted in the open air without removing the bees from the hive. This is an advantage, and takes up much less time than when the bees have to be placed in another hive. With loose floor boards and ordinary sized hives it is a very easy matter to replace a wet board with a dry one, as in the most carefully managed apiary too much moisture will occasionally be found in some of the hives.

Roofs may be blown off, and in connection with a mishap of this description I lately observed the benefit derived from the use of ticking for placing next to the frames, in comparison with calico for quilts. The former had been drenched with rain, but owing to the stiffness of the material, which was well fastened down to the frames by the bees with propolis, no moisture had penetrated to the interior of the hive. The other hive, which had the same amount of covering on the top of the quilt, which was calico, was saturated with moisture, and the bees had to be at once removed into a dry hive. Ordinary ticking is the best material for quilts, as the above illustrates.

REDUCING ENTRANCES.

If not already done this should be carried out without delay, as warmer weather may soon be expected, and as outdoor supplies will be scarce for some time to come, robber bees from strong colonies will be on the alert to gain an entrance to the stores of their weaker neighbours.

The best way to prevent this is to reduce the entrance to the

hive. In ordinary cases an inch will be ample at this season, more space being given to them as they increase in strength and supplies are coming in freely.

Should a weak colony be attacked it is advisable to reduce the entrance, so that only one bee can pass at a time. This will enable the rightful owners to defend their stores against the intruders. It is also an advantage to sprinkle a little carbolic acid on the alighting board, so that only a narrow passage is left clear for the bees to pass to their hive. This will usually have the desired effect; but in very bad cases where robbers have gained an entrance before being observed it is advisable to remove the hive from its stand, taking it several yards away. This should be done at night after the bees have all returned to their hives. An empty hive must be placed on the stand, the robbers will then soon find out their mistake, and will settle down to work.—AN ENGLISH BEE-KEEPER.

DOUBLING HIVES.

"AN ENGLISH BEE-KEEPER" (page 169) says "G. H." does not quite grasp the idea, and imagines more hives will be necessary. I may assure "An E. B.-K." my vision is clear on the matter of doubling hives, it being well understood here, but still think it takes more hives. "An E. B.-K." says (on page 20, January 7th), "Another hive the same size is then placed on the top and filled with empty comb, and the frames with adhering bees previously removed from the brood nest. If not of sufficient strength some frames of brood and the adhering bees may be taken from other stocks which are headed by old queens." Now from the above I still think more hives are needed, and the manipulation of several hives to make a strong one.

With our large hives we have found this unnecessary, and my contention is, Why go in for hives where a queen has not room for her ovipositing powers at the time most needed? for with ten standard frames the queen has no such room. It speaks well for large hives, at the present time (March 3rd) nearly covering nine frames. At the meeting of our Association (March 3rd) one of our members stated that day he had examined one of his hives, which has twelve frames, 18 inches by 9 deep; the bees covered nine frames, and he observed several drones. On February 20th strong hives were fanning at the entrance at nine o'clock in the evening. I find that large hives need less attention as to feeding. If stores are short in the month of August, and a supply is given to last until April, very little trouble is given to the bee-keeper, and candy feeding is found unnecessary with large well-provisioned hives.—GEORGE HOWDENSHERE.

TO CORRESPONDENTS

All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed to members of the staff after remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Address (G. N.).—The Secretary of the United Horticultural Benefit and Provident Association is Mr. Collins, 9, Martindale Road, Balham, London, from whom all particulars may be had.

Culture of Lapagerias (Journeyman).—The article on page 228 will doubtless be of more assistance to you than could a brief reply in this column. Lapagerias are, as you say, of very great beauty when well grown, which unfortunately is not always the case.

Peach Buds and Flowers Falling (G. P.).—You say nothing about the age of the trees. We suspect the root action is defective, or the soil lacking in necessary food ingredients. The wood is weak, and was not matured last year. Possibly the trees were attacked with red spider. Their condition must be improved for the retention of buds and the production of fine fruit.

Weeds on Lawns (H.).—We have seen lawns from which Daisies have been entirely banished by the proper and judicious use of "lawn sand," which is sold for that purpose. We have not seen deep rooting weeds such as plantains similarly eradicated. They are best drawn out with implements made for that purpose, but can be destroyed by sulphuric acid, which requires, however, to be used with particular care.

Men Employed in Gardens (W. E.).—The precise number of persons employed in the gardens you name is, we are authoritatively informed, twenty-six.

Chrysanthemums (T. T.).—No person in the world could give the required information without much better samples before him than those you have sent. If you wait until the leaves are more developed, then send samples characteristic of the varieties in a small box, with a little damp moss or green grass as packing, so that the leaves reach us somewhat in the same condition that they leave you, we will, as far as is possible, comply with your wishes, which, however, must be repeated, as your present letter cannot be preserved. Leaves simply enclosed in envelopes have the moisture extracted from them by the absorption of the paper, and the post office punches complete the finishing process of destruction.

Yew Wood (G. Hart).—The wood of the Yew is remarkable for its toughness and elasticity, and is celebrated for the purposes to which it was anciently applied in making that most formidable weapon of our ancestors, the longbow. The wood is at present valued by cabinet makers and inlayers on account of its beautiful red veins, and it is also a good material for flood gates, cogs for wheels of mills, and other works where strength and durability are required. We have no idea of its commercial value at present, so little being placed in the market of English growth, and other woods being so cheap; but there is a demand for heavy woods, and probably this may apply to Yew. Could you not consult a timber merchant or make inquiries of cabinet makers?

Proportion of Seeds to Length of Row (Tyro).—We do not think the estimate is very far wrong. We do not approve of so-called cheap and doubtful seeds and sowing thickly, but prefer thoroughly good seeds and sowing thinly. A quart of Broad Beans will sow a row of about 150 feet; Early Peas, 140 feet; Late Peas, 160 feet; Scarlet Runners, 150 feet; Dwarf Kidney Beans, 280 feet. An ounce of Onion seed will sow a drill of 150 feet; Carrot, 180 feet; Parsnip, 200 feet; Beet, 60 feet; Parsley, 180 feet. In sowing small seeds broadcast half ounce of Lettuce or seeds of the Cabbage tribe suffices for 8 square yards, and 1 oz. of Radish seed will sow 5 square yards. As to Potatoes the length of row a peck will plant depends on the size of the tubers. The early varieties as usually sold will extend over about 150 feet length of row.

Depth and Distance for Sowing and Growing (Idem).—Broad Beans—Rows, 2 feet; seeds, 4 inches apart and 3 inches deep. Sow very early (March). Scarlet Runners—Rows, 8 feet; seeds, 6 inches apart and 3 inches deep (May). Dwarf Kidney Beans—Rows, 2 feet; seeds, 5 inches apart, 3 inches deep (May). Peas—Rows, distance equal to height of plants; seeds, 2 inches apart in flat drills, 3 inches deep (February to June). Onions—Drills, 10 to 12 inches apart and nearly an inch deep; thin the plants to 4 inches asunder. Sow in March or early April, and early in August. Carrots—Early Horn, sow in March or early April, cover the seed, and thin the plants the same as Onions. Main crop, end of April, thinning early to 5 or 6 inches apart, in rows quite a foot asunder. Parsnips—Drills, 14 inches apart and 1½ inch deep. Sow early (March), thin to 6 or 8 inches asunder. Beet—Drills, 15 inches apart and 2 inches deep; Turnip-rooted for summer use sow in April, long-rooted early in May. Thin early to 8 inches asunder. Turnips—Drills, 15 to 18 inches apart and half an inch deep. Sow thinly April to July (ready in about eight weeks), later for storing. Thin early to 9 inches asunder. Small seeds of Cabbage, Lettuce, and Winter Greens are best sown very thinly in drills 6 inches apart and ½ inch deep. The first smooth seed leaves should not touch each other. When 2 or 3 inches high dib the plants 5 or 6 inches apart to get sturdy for final transplanting in showery weather with small forks. Many plants and crops are spoiled by sowing seeds too thickly, leaving plants unthinned too long, and transplanting too late. Good sets of early Potatoes may be planted about a foot apart in rows twice that distance deep when the ground is dry in March or early April. Cover the sets 4 inches deep in March, 3 inches in April. Hoe between all rows once a week to prevent weeds, and draw out those in the rows when the weeds are half an inch high.

Planting Shrubs (S. E. H., France).—Shrubs for winter flowering in the position named are *Azara microphylla*, *Elæagnus glabra*, *Viburnum tinus* (Laurustinus),* *V. t. Roebeli*,* *Photinia japonica*, *Skimmia japonica*,* *Chimonanthus fragrans*,* *Cydonia japonica*, *Daphne Mezereum**, and its varieties *atrorubrum** and *flore alba**, with *Jasminum nudiflorum* (climber). *Rhododendron catawbiense*, in several shades of colour, often flowers in February, but usually in March. Those marked with an asterisk are the most reliable. Both winter and spring flowering shrubs may be safely transplanted during the next three weeks, or even later if the plants are obtained in pots. Should it not be convenient to carry out the work now it may be delayed till October or November. To insure success in planting a dry bank in a shady position, the soil must be thoroughly prepared. If the bank is closely interlaced with tree roots the stronger ones must be cut away with an axe. The ground should then be dug with a spade to the depth of a foot if possible, placing well decayed manure in the bottom of the trench as the work proceeds. If a few inches of fresh soil can then be placed over the surface the plants will make quicker progress, but this is not absolutely necessary. At a distance of 7 feet apart plant *Cotoneaster microphylla*, and train the shoots to strong, upright stakes; then over the whole remaining space *Vinca major* and *V. minor*, keeping the smaller variety near the edges of the bank. If the plants are set 10 inches apart they will soon grow into a compact mass, and give but little subsequent trouble. The best time of the year to carry out the work is early November. If done during the present month a little attention in the way of watering will be necessary during the first summer.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, at being often difficult to separate them when the paper is damp. (J. G.).—Only one specimen was in a proper state for identification, all should have been in flower or in fruit. Possibly they are—1, a *Pittosporum*; 2, a *Crataegus*; 3, a *Berberis*; 4, a *Ceanothus*; 5, a *Clematis*; 6, is *Cornus mas*.

COVENT GARDEN MARKET.—MARCH 17TH. FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, $\frac{1}{2}$ sieve	1	3	to	2	6	Lemons, oase	11	0	to 14 0
Filberts and Cobs, per 100lb.	0	0	0	0	Plums, $\frac{1}{2}$ sieve	0	0	0	0
Grapes, per lb.	2	0	3	0	St. Michael Pines, each ..	3	0	8	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Asparagus, per 100	0	0	to	0	0	Mustard and Oress, punnet	0	2	to	0	4
Beans, $\frac{1}{2}$ sieve	0	0	0	0		Onions, bushel	3	6	4	0	
Beet, Red, dozen	1	0	0	0		Parsley, dozen bunches ..	2	0	2	0	
Carrots, bunch	0	3	0	4		Parsnips, dozen	1	0	0	0	
Cauliflowers, dozen	2	0	3	0		Potatoes, per owt.	2	0	4	9	
Celery, bundle	1	0	0	0		Salsafy, bundle	1	0	1	0	
Coleworts, dozen bunches	2	0	4	0		Seakale, per basket	1	6	1	0	
Cucumbers	0	4	0	8		Scorzoneria, bundle	1	6	0	0	
Endive, dozen	1	3	1	6		Shallots, per lb.	0	3	0	0	
Herbs, bunch	0	3	0	0		Spinach, pad	0	0	4	0	
Leeks, bunch	0	2	0	0		Sprouts, half sieve	1	6	1	0	
Lettuce, dozen	1	3	0	0		Tomatoes, per lb.	0	4	0	9	
Mushrooms, per lb.	0	6	0	8		Turnips, bunch	0	3	0	0	

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arbor Vitæ (various) doz.	6	0	to	36	0	Ferns (small) per hundred	4	0	to	0	0
Aspidistra, dozen	18	0		36	0	Ficus elastica, each	1	0		7	0
Aspidistra, specimen plant	5	0	10	6		Foliage plants, var. each	1	0		5	0
Azalea, per dozen	18	0		36	0	Genista, per dozen	8	0		10	0
Cinerarias, per dozen.. ..	8	0	10	0		Hyacinths, large, per dozen	6	0		12	0
Cyclamen, per dozen.. ..	9	0		18	0	Lily of the Valley, 12 pots	9	0		12	0
Daffodils, per dozen	6	0		8	0	" " " in boxes	4	0		6	0
Dracæna, various, dozen ..	12	0	30	0		Lycopodiums, dozen	3	0		6	0
Dracæna viridis, dozen ..	9	0		18	0	Marguerite Daisy, dozen..	9	0		12	0
Erica, per dozen	9	0		12	0	Myrtles, dozen	6	0		9	0
" hyemalis, per dozen	10	0		15	0	Palms, in var. each	1	0		15	0
Eunonymus, var., dozen ..	6	0		18	0	" (specimens)	21	0		63	0
Evergreens, in variety						Spiræa, per dozen	6	0		9	0
dozen	4	0	18	0		Tulips, dozen pots	6	0		9	0
Ferns in variety, dozen ..	0	0	13	0		" in boxes, per dozen	0	8		1	6

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety

	s.	d.	s.	d.		s.	d.	s.	d.		
Anemones, dozen bunches ..	2	0	to	4	0	Mignonette, dozen bunches	3	0	to	6	0
Arum Lilies, 12 blooms ..	2	0	4	0		Mimosa (French) per					
Asparagus Fern, per bunch	2	0	3	6		bunch	1	0	1	6	
Azalea, per dozen sprays ..	0	6	1	0		Narciss, White (French),					
Bouvardias, bunch	0	6	0	9		dozen bunches	3	6	4	6	
Carnations, 12 blooms ..	1	6	3	0		Narciss, Yellow (French),					
Daffodils, double, dozen						dozen bunches	1	0	2	0	
bunches	1	6	4	0		Orchids, var. doz. blooms	1	6	12	0	
Daffodils, single, dozen						Pelargoniums, 12 bunches	6	0	9	0	
bunches	3	0	8	0		Pyrethrum, dozen bunches	1	6	3	0	
Eucharis, dozen	3	6	4	0		Roses (indoor), dozen ..	1	0	2	0	
Gardenias, dozen	4	0	6	0		" Tea, white, dozen ..	1	0	2	6	
Geranium, scarlet, doz.						" Yellow, dozen (Niels)	6	0	9	0	
bunches	6	0	9	0		" Red, dozen blooms ..	4	0	6	0	
Hyacinths (Roman), 12						" Safrano (English),					
sprays, and per bunch ..	0	6	0	9		dozen	1	0	2	0	
Lilac, White (French), per						" Pink, per dozen	4	0	8	0	
bunch	8	0	5	0		Smilax, per bunch	5	0	6	0	
Lilium longiflorum, 12						Snowdrops, dozen bunches	1	0	2	0	
blooms	3	0	6	0		Tuberose, 12 blooms	1	0	1	6	
Lily of the Valley, 12 sprays,						Tulips, dozen blooms	0	6	1	0	
per bunch	0	6	1	0		Violet Parme, per bunch ..	2	6	3	0	
Marguerites, 12 bunches ..	2	0	3	0		" per doz. bunches ..	1	6	2	6	
Maidenhair Fern, per dozen						" (French), per dozen					
bunches	6	0	9	0		bunches	1	0	2	0	



"BY THE WAY."

WITH a prospect of grass keeping becoming more abundant as spring advances, and spring, as we write, seems not only at our door, but over the threshold, it appears to be but natural that we should ask ourselves with what are we stocking our pastures, and what are the prospect of such stock for the future. We have before us the American live stock statistics published on January 1st, 1897, and we think they afford very instructive reading for all interested in the breeding and rearing of cattle and sheep in this country.

It would serve no useful purpose to give the statistics in full

but we may briefly state that whereas cattle in the United States reached their maximum numbers—viz., 54,068,000 in 1892, and sheep their maximum of 47,274,000 in 1893, both have gradually fallen in numbers since then, so that now they amount to—Cattle, 46,450,000; sheep, 36,819,000. What has become of the 8,000,000 cattle which the States have lost during these five years? We have received into this country during that time from there in cattle (and fresh beef representing cattle) something like 4,000,000, but this accounts for only half the 8,000,000. It would appear, therefore, that at recent prices it does not pay the American farmer to rear stock for home consumption, and that he has given up trying to do so, or that the demand in the States has so increased during the last two or three years that the supply has been quite unable to keep pace with it. The latter solution seems the more reasonable, for prices have certainly risen during the last few months, a result which was inevitable under the circumstances.

Will a rise—that is, a reasonable rise—in price have any very appreciable effect on the supply? We hardly think so. Unlike pigs, cattle cannot be rapidly bred up to existing requirements, so we hold a firm opinion that a higher range of prices for beef will be attained, at any rate for the next two or three years, if not permanently. This being granted, it would appear that the rearing of calves should prove a remunerative investment to farmers whose holdings are suitable for the purpose. With a better demand for beef, we are sure to have an even better demand for meat-making machines, so let us stock for 1898 as well as 1897.

The reduction in the number of States sheep is not likely to affect us so materially, as mutton is a product with which the Yankees have never supplied us to any great extent. It, however, adds force to our contention that the British consumer will have to look elsewhere than the United States for his meat supply, unless he is prepared to pay such a price for it as will stimulate the American farmer to the production of meat, not in the present, as we may style it, ranche fashion, but more as we produce it in England.

No doubt many farmers will say that they already breed as much stock as they can carry. But do they make the most of the food produced on their farms? For instance, do they use much straw as bedding? By the use of peat moss litter almost the whole of the straw may be consumed as food; but in order to do this it must be cut up and mixed with roots, or made appetising by the addition of a little meal, treacle, or grains.

The question, "What can the farm be made to carry?" suggests another, "Do we make the best use of our seeds and grass?" When Clover seeds are dear farmers are apt to cut down the quantity usually sown. They cannot afford more at the price, so they run the risk, for the sake of perhaps 2s. or 3s. per acre, of having only half a plant, and therefore a pasture worth less to him by £1 or 30s. per acre than it would have been if he had been liberal with his seed. Considering the great value of the Clover crop it is amazing how careless farmers are not only about the quantity of seed but the quality they use.

Clovers are this season fairly reasonable in price at present, though there is some talk of a prospective rise, so that if bought at once whites can be had very good at 10s. per stone and red at 9s. Inferior seed can be bought much cheaper, but it would be dearer in the end. When we consider that we have the same labour bill and the same rent to pay whether our pastures are good or bad, it is obvious what a penny-wise, pound-foolish policy it is to be miserly as regards the seed bill.

Whilst on the subject of Clover seed we may take the opportunity to recommend a variety called "Giant White." We have found it much more productive than the ordinary white, and carries a much heavier head of stock. It is nearly as large as red Clover, from which it may be a sport. We have only tried it for one year's pasture so cannot say whether it is perennial or not.

Very considerably increased returns may be obtained from poor meadows and pastures by the judicious use of artificial manures. The number of cattle a farm will carry is only limited by the amount of cattle food the said farm can be made to produce, for heavy stocking does not affect the healthiness of cattle, as it is liable to do that of sheep. So that if the crops of grass can be increased 20 per cent. a proportionately larger number of beasts may be fed.

To those who wish to improve poor grass, and have not farm-

yard manure to put on we would suggest a little experiment. Top-dress a portion at once with 80 lbs. nitrate of soda and 200 lbs. superphosphate of lime per acre. Have the dressed part carefully marked out, and watch the effect.

WORK ON THE HOME FARM.

We have again to record a week of disappointment. The high winds which appeared likely soon to produce March dust in plenty, have been followed by drenching rains (one day we had a thunder storm), and where sowing has been done it has been with difficulty, and can hardly prove satisfactory. So far March has not fulfilled the hopes we had of it; the land seems almost as sodden as ever, and meanwhile time is passing. Every effort must be made to get sowing finished between now and April 10th.

The question when to sow Clover and similar seeds is an important one. We favour sowing early, immediately behind the corn drill, and harrow seeds and grain in at one operation. A plant of seeds under these conditions is almost a certainty. True, there is the danger of the Clover getting big amongst the corn, and making it more difficult to harvest, but it is a lesser evil than having no seeds.

Lambing proceeds slowly, but with fairly good success. The crop of lambs is in some cases large, and taking the district as a whole quite up to the average. Young seeds have grown in a wonderful manner, the Rye grass being several inches long, so there is plenty of food for the ewes when it is wanted. We put the pairs on seeds as soon as we can get them out, but keep the singles on grass, and give them a few Mangolds.

Turnips are nearly finished, and the sheep clippers are in demand. Clipped sheep are plentiful in the local markets—in fact, are now the bulk of the show. Fortunately for those who now have to sell, the markets are decidedly good, a falling off in the imports of dead sheep having given an impetus to the demand for home-bred mutton.

We are ridging for Potatoes one field which was manured during early winter; we shall have the planting done immediately. Another field is all ridged out, but is waiting for the manure, which will be taken straight out of the covered yards. If the Potatoes are then quickly planted and the ridges split with the plough there should be little or no loss of ammonia.

One piece of land we are planting with a new variety, which, being large in size, we shall have to cut. We shall cut them a couple of days before planting, and have no fear of loss from dry rot, which sometimes occurs if they are cut and planted immediately.

OUR LETTER BOX.

Churns (H. J.).—For so small a quantity of cream as 12 lbs. the simple wooden churn is best—the kind with the horizontal barrel. The opening for pouring in the cream should be as large as possible. It is also important that no part of the churn should be out of reach of the hand. It should also have a simple and sufficient lid, and the whole thing must be light, convenient, and durable. The Dairy Supply Co., Museum Street, London, is a very reliable firm.

Comfrey and Lupins for Fodder (S.).—The white Prickly Comfrey is planted and grown in the same way as Rhubarb. It is requisite that the soil be rich, deep, and moist for promoting quick succulent growth. If the growth is slow, as in poor, dry soil, the leaves are bitter, and animals will not eat them. Good single crowns are planted 3 feet asunder, at this period of the year, and the ground around them covered with manure. No leaves should be cut or gathered the first season. The common yellow Lupin is grown on the Continent as a fodder crop, chiefly in poor sandy soil. The seeds are drilled early in May, in rows 15 inches apart, at the rate of 2 bushels an acre. The crop is only to be recommended in this country where the land is too poor for Vetches, Lucerne, or Clover.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1897. March.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 7	30.065	36.8	36.0	N.E.	39.2	44.1	31.7	72.4	25.9	—
Monday .. 8	30.145	39.2	34.8	N.W.	39.1	45.1	32.5	69.6	25.4	—
Tuesday .. 9	30.113	38.2	36.3	S.E.	38.1	48.5	29.3	60.9	22.1	0.228
Wednesday 10	29.957	42.4	39.7	W.	39.8	50.2	38.3	87.8	32.3	—
Thursday .. 11	30.089	40.4	38.9	S.W.	39.2	50.8	33.9	85.1	26.2	0.176
Friday .. 12	29.609	42.9	40.6	S.W.	40.1	49.9	40.9	92.6	33.8	—
Saturday .. 13	29.573	40.6	38.7	N.	39.9	50.8	32.9	82.7	26.4	—
	29.936	40.1	37.9		39.3	48.5	34.2	78.7	27.4	0.404

7th.—Overcast till 11 A.M. then frequently sunny till 3 P.M., and fair after.

8th.—A little fog early; sunny morning; foggy afternoon.

9th.—Fair morning, with slight fog till 10 A.M.; and dull and foggy at times in afternoon. Rain from 6 P.M. to 10 P.M.

10th.—Bright sunshine almost throughout, but spots of rain at 2 P.M. and 5.15 P.M.

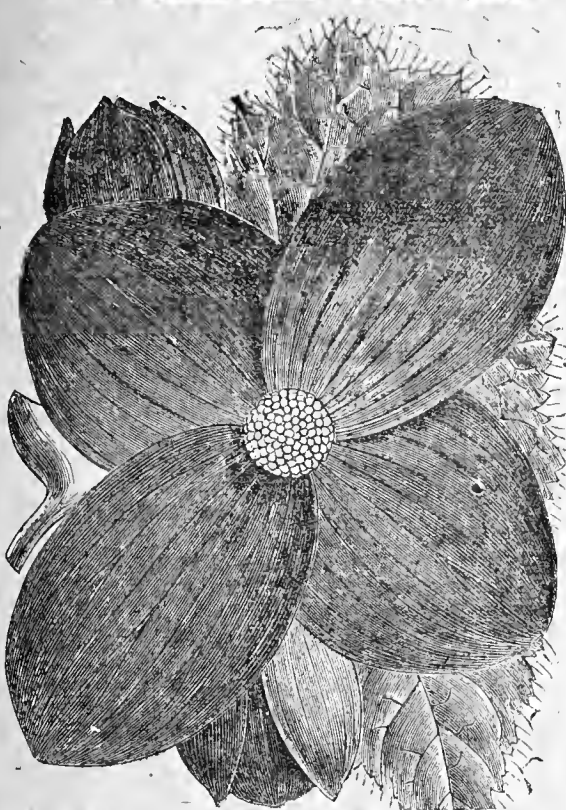
11th.—Bright sun all morning; cloudy at times in afternoon; rain and high wind in evening and night.

12th.—Bright morning; cloudy at times, and spots of rain in afternoon; fine night.

13th.—Overcast early, with spots of rain; sunny for two or three hours at midday; cloudy after.

A very average week in all respects.—G. J. SYMONS.

WEBBS'



TUBEROUS-ROOTED BEGONIA.

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1/6 & 2/6 per Packet, post free.

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6 QUARTS OF PEAS, 6 fine sorts, our selection, 9/6.

12 PINTS OF PEAS, 12 fine sorts, our selection, 10/-.

6 PINTS OF PEAS, 6 fine sorts, our selection, 5/-.

4 PINTS OF PEAS, 4 fine sorts, our selection, 3/6.

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Entirely Supersedes Turf, which is always full of vile weeds.

Old, worn out, and mossy pieces of Grass can be renovated at little expense if the following directions are attended to.

Lightly scratch the surface with a rake, to make a bed for the Seed, which sprinkle over the ground at the rate of 1 lb. (costs 1s. 3d.) to every 500 square feet, and the contents of a 3s. box of Carter's Lawn Manure (No. 1 prescription); cover the whole with a barrowful of good clean loamy soil. Brush it over the ground, then thoroughly well roll down. Choose a dry day for the work, and where the Grass is very thin do not stint the Seed. If there is no rain within a few days after sowing, and dry winds prevail, a good watering is desirable. Do not cut too closely at the first two mowings.

Estimates for Quantities on application.

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THE QUEEN'S SEEDSMEN,
237, 238, & 97, HIGH HOLBORN,
LONDON, W.C.



Journal of Horticulture.

THURSDAY, MARCH 25, 1897.

AN OLD WALL.

"GREAT ruins make way for greater glories." This is the case with our old wall. Probably not upon the lines laid down by that gifted man Seneca, whose high philosophical teaching made apparently so little impression upon his pupil Nero. Apparently? Who can say how ran the imperial fiddler's thoughts when Rome was burning, and whether his tutor's moral had not applied the torch to the City of the Seven Hills? No one can look upon our wall without being carried to the past—to Elizabethan times at least, for does not report say that the Virgin Queen slept in the old mansion near at hand? It does; and we like to believe it; to believe, too, that great Elizabeth passed under the arch in the old wall with gallant Raleigh or courtly Leicester and all her gorgeous train. Unfortunately the huge Wistaria, now showing the tints of hundreds of tresses adorning the head of the arch, is not contemporaneous with that event.

Unquestionably our old wall is a relic of Tudor times, although we are unable to trace the quaint conceit which placed it between the garden proper and the mansion, belonging neither to the one nor the other, yet having some relation to both. Over the arch we have set the Fleur de Lys—the Flag Irises, and they have flourished amazingly. To do so we had to make some cavities—or rather, to assist the hand of Time by dislodging a few more of the rich red bricks. Our wall is of bricks—for there were brickmakers in those days, and builders too, and whatever the labourers were paid they were worthy of their hire, for they went down to the solid on which to set their foundations, and our old wall still stands as aplomb as the day it was built.

"Wants repairing, it do," says our handy man, "and all they weeds and rubbish cleared off the top; a letting in the wet, they be," and with this parting shot he slinks away, for there is danger in our eye, insanity he possibly thinks. Perhaps we are a little more fearful of our head gardener, who has long cast a covetous eye over the length and breadth of its south-west aspect. Could we be prevailed upon to give this up to him we might, I know, have undisturbed possession of the other side on which the "stiff nor-easter"

blows; but closing our ears to all insinuating reminders of juicy "Georges" and luscious Louise Bonnes we look lovingly upon our old wall, fill our dishes elsewhere, and let trimness and tidiness go to the other part of the grounds. It is, of course, very wrong—that is, so far as the right side of the wall is concerned, and we duly and daily feel our perverseness, plead guilty, but can't give way, so have to stand a fire of criticism, from the rough and ready shots of our handy man to the polished shafts from our accomplished *chef*, who, saying less, means more, for the dignified wave of his hand to our wall when hurrying past his friends to the supreme examples of law and order appear to "Convey a libel in a frown, and wink a (our) reputation down."

Just now we are inflated with pride as the bursting buds of glorious patches of Daffodils at its foot tell us that spring has come. Patches that one may walk through and about without leaving tell-tale footmarks behind, for be it known to our shame that we neither delve nor dig save to introduce some especial favourite to the general confusion. Confusion? No! There is method in our madness, as you may see by those grand masses of *N. princeps* now waving in the wind. Horsefield's, Emperors, and other mighty trumpets play no mixed medley, each company keeping their own ground. All these things, and more also, are under the protection of ourselves and the old wall, but there comes wafted down from the crummiest part of its crumbling summit a delicious perfume recalling the wandering senses to our chief object. Wallflowers pure and simple, not fatted up with manure for the beds, but bravely holding their own; humble members of their kith and kin, just old brown and golden yellow.

Away at the far end where the trees will shade from the noon-day heat of summer suns, into every available crevice, and they are many, more shame to us again, *Erinus alpinus* has crept; later on the setting sun which finds its way there will light up the myriads of tiny blossoms into a warm glowing mass of beauty. Roses, which (alas!) will never deck an exhibition board, we shall fairly revel in, in tangled masses of yellow *Banksians* and white *multifloras*. At that time it may be a relief to retire into the cool shade of the other side, where the simple *Rue Fern* and the *Ceterach* are at home. At the foot yet rest many crowns from which the *Lady Fern* will soon unroll its graceful fronds. Already, here, patches of *Venus's Navelwort*, *Omphalodes verna*, have opened their eyes of heaven's blue. It is very beautiful, just a little too leafy, but its luxuriance testifies to the presence of the limestone which it loves.

Yet one would fain return and linger at the south-west side of our wall where the sunbeams are trapped and note how, even so early in the season, the potent days are warming back to life and beauty climbers, and creepers, things above and things below. Warmth and Life. Our feathered friends are already busy; a pair of tits, blue-headed busybodies, disappear through a marvellously small portal into a snug retreat, whilst there are sundry nests of the blackbird and thrush, last year's homes, in excellent repair; but the former tenants are about to build upon other eligible sites, comprising an old *Magnolia*, sundry varieties of *Honeysuckle*, *Pyrus japonica*, with other bushy or tangly things. We have a weakness for *Ampelopsis Veitchi*, so much so that a little restriction is necessary or our old wall would soon be entirely hidden; but there are peeps of the warm red crumbling brick that one would fain keep.

Years ago a crimson Snapdragon settled itself in a breach; it has multiplied and replenished on that particular spot in the happiest manner. We have, of course, introduced various things with partial success on both sides of our wall, of which we may have something to tell later on, provided that contingencies hinted at are averted. Our old wall, venerable, picturesque, comforting on the sunny side now in its Riviera-like clime; grateful on the other when dog days deserve their name, and taken all together and at all seasons the favourite spot in a favoured garden of—THE SQUIRE.

HARDY BULB CULTURE IN ENGLAND.

[By F. W. BURBIDGE, M.A. Read before the Birmingham Gardeners' Mutual Improvement Association, March 15th, 1897.]

WE are told by politicians nowadays that thrift and home industries are essential, and whilst some advocate milk or meat, or poultry and eggs, or jam making, or the "busy bee" industry, I will advocate bulb culture. We have here in Birmingham our friends Mr. W. Sydenham and Mr. Pope, and others interested in bulbs, but I should like to see every small farmer, every cottager and allotment holder, and even the railway porters growing at least a few bulbs for sale.

In Holland and elsewhere it is the small growers who supply the wholesale growers and merchants, and I should like to see the day when Mr. Sydenham and others of our great bulb merchants are not obliged to go over to Holland with their big cheque books once or twice a year.* Bulb growing is safer and more pleasant than gold or diamond mining, even though, perhaps, not quite so profitable as "bicycle booms" and breweries, or some cornered shares on 'Change. We all want more faith. If the English gardener has one greater fault than another to-day, it is that he does not believe in himself, and in the soil and climate of his native land.

So far as general energy and garden skill are concerned no gardener on earth can beat the English gardener, and what seems to me of paramount importance just at this juncture is that the English gardener should have faith in his own ability, and more especially faith in his own climate and in his own soil. He should also be more eager and careful to learn thoroughly the technics of special cultures, whether of fruit trees, vegetables, flowers, or bulbs. We want the intimate and special practical training that the Dutch bulb growers turn to such a national advantage. This is no new Gospel, for the text itself has been preached from the days of Dr. Bulleyne of Ely, in 1570, to those of Miller, of Chelsea, in 1731. Miller, in his great "Gardeners' Dictionary" under "Tulip," especially recommends English growers to compete with those of France and Flanders or Holland in the rearing of these and other hardy bulbous flowers from seed. My present object is twofold, and I wish to show that bulb culture may be a profitable form of land culture, and that the rearing of new varieties of bulbous flowers from home-grown seeds may be a most intellectual and interesting pursuit whether it be profitable or otherwise.

It has been well said by many good authorities that English farming in the future will resolve itself into "gardening in the fields"—that is to say, that at a time when corn and meat and wool can be imported as cheaply or more so than we can grow them for ourselves, then English soil wherever suitable may be best utilised in growing fresh flowers, fruits, vegetables, milk, and other commodities not so easily and cheaply imported to our shores.

Bulb culture in Holland, and South France and Italy, in the Channel Islands and in Cornwall, and in the Isles of Scilly, has proved to be the most profitable of all cultures on suitable sites and soils. The soil, and especially the mild and early climate in Scilly, is an advantage; but the methods of culture there are generally of a very simple and ordinary kind. The same is true in some other parts of England, as in Lincolnshire, in many market gardens and nurseries near London, and in the Isle of Wight.

There are already hundreds of acres in Great Britain and Ireland under bulb culture, but there is room and demand for more. We may never export many home-grown bulbs, but so far as *Narcissi*, *Crocus* and *Tulips* are concerned, we might easily grow our own supply. There are many growers here and there who are making a good living, even though not a fortune, by careful bulb culture. As you go about through the country, and especially near most large towns, you see rows and strips of bulbs almost everywhere. Now that is a good sign, and though the cultivators do not stand shouting out to the passer-by as to bulbs being a paying crop, yet it is true all the same. A man who is doing a good business is, as a rule, a sober and industrious man, content to eat a meaty bone in peace and quietness.

Let us ask what a bulb really is?

A bulb is simply a large bud with close-packed fleshy leaves, or leaf bases, in which are stored an accumulation of starch, sugar, and other concentrated plant food. As hibernating animals store up fatty matter before going to sleep for the winter, so do bulbs store up surplus food and hide themselves underground so as to go through cold or drought unharmed. This habit renders bulbs so handy and convenient for distribution at certain seasons of the year. Bulbous plants are due to sudden changes of temperature or of drought and moisture, such as occur in the great natural bulb fields of the world. These are in Southern and Eastern Europe, in

* At the very lowest calculation, England pays £100,000 to the Dutch bulb growers every year.

Western Asia, in North Africa, and at the Cape of Good Hope. Broadly speaking the climatic conditions of these places are very cold or dry in winter, rainy and warm in spring, followed by a blazing hot and dry summer and autumn. Hardy bulbs may suffer during a dry and hot spring, but they cannot well have too much moisture at the roots when in growth, and they enjoy warmth and drought when at rest.

In order to grow bulbs to the best advantage for trade purposes they must all be lifted and replanted every year. Here again we must follow out the good gardener's axiom of doing the right thing in the right way or manner, and at the right time. The bulbs must be dug or lifted as soon as the leaves turn yellow and fade, in June or July at latest. Above all dig too early rather than too late; dig before the leaves fade entirely rather than after new roots grow from the base of the bulb. On most deep, rich, sandy soils bulbs, such as Narcissi and Tulips, &c., ripen off in June or July, and should then be dug, assorted, and cleaned ready for sale or replanting. A light, dry, and airy bulb shed, fitted with lath or open-work shelves is convenient for storage; but much may be done with strong lath boxes that will stack one above another in field or garden, and which can be covered over temporarily when it rains.

The first thing is to select the land most suitable to bulbs of various kinds. Even in Holland and other places where bulbs are and have long been a special culture, success can only be assured on certain plots of suitable soil. Again, the land that grows the best Hyacinths is not so suitable for Narcissi, or for Tulips, even in Holland. I think the Dutch pre-eminence in bulb culture is more due to their methodical thrift and skilful industry—an hereditary gift to them—rather than to the super-excellence of their soils or their climate.

Where suitable land can be had, and it is tolerably level, a plough followed by a three-pronged cultivator to loosen the subsoil, may be used with economy, but in rocky plots on a steep gradient, and elsewhere on small areas, the spade is the best implement to use. Again, land, however good, won't grow bulbs year after year for ever, without manure or some recuperative rotation of cropping. On large bulb farms the ground is well tilled and enriched for vegetable crops, or Clover and Rye Grass, and then well worked after these for bulbs to follow. In any case, never use crude or farmyard manures direct for bulbs. Bone superphosphate, and wood ashes or kainit, may be worked into the soil with advantage a week or so before the bulbs are planted. I have also seen nitrate of soda and wood ashes and soil used with advantage in February as a top-dressing.

There are in England to-day thousands of acres of derelict land suited for bulb culture. All around our sea coasts, especially, there are sheltered sunny nooks and valleys that are unvexed by wind and unscathed by biting frosts, even during our usual winter season. These places require selection and utilisation; in a word, we must discover our own land. You don't want the expensive horse power, the deep tilth, and the heavy manurings necessary for Swedes or Mangolds in order to grow bulbs successfully, but you must have a loam sufficiently sandy to be workable even during a rainy season.

(To be continued.)



ONCIDIUM SPLENDIDUM.

I AM quite persuaded that amongst the many Orchids in bloom with us at the present time there is none claiming greater attention than the beautiful Guatemalan species, *Oncidium splendidum*, and considering the perfect ease with which it may be grown it is not only worthy of inclusion among large collections, but is quite as essential in those of the small amateur growers. To grow it successfully place the plants in shallow baskets or pans, using a compost of peat and sphagnum moss. After potting the pans should be suspended from the roof of a house having a temperature of from 55° to 65° during the summer, shading from strong sunshine and giving free supplies of water as growth advances, diminishing during the autumn months. I have seen many fine plants fail to produce their flower spikes through a check of water during the summer time. The flowers, which are produced on strong upright spikes, have the sepals and petals banded with bright brown; but perhaps the predominating feature is the broad lip, which is of a lovely shade of bright yellow.—R. P.

TRICHOGLOTTIS COCHLEARIS.

THIS pretty little Orchid does not seem to be very generally known, judging by its rare appearance, even in large collections. The plant is dwarf in habit, and has thick slightly channelled leaves arranged in Vanda-like manner on opposite sides of the stem. The flowers are borne three or four together in small racemes springing from the axils of the upper leaves, and are remarkably pretty. The sepals are lanceolate; the petals are broader and rounder at the upper part, both being pure white barred with bright purple—a charming contrast. The lip is curiously hollowed or scoop-like, terminating beneath in a short



FIG. 54.—TRICHOGLOTTIS COCHLEARIS.

conical spur, and the form being somewhat suggestive of a shell has given rise to the specific name adopted. *Trichoglottis cochlearis* is a native of Sumatra, whence it was introduced by Messrs. J. Veitch & Sons a few years ago.

VARIATIONS OF SEEDLINGS FROM FRUIT.

No doubt raising seedling fruit has for many years been a matter of great interest to those who have entered all forms of fruit culture, and pomologists have attempted, with more or less success, to secure improved varieties of fruit with rather less than more success. One name, that of Andrew Knight, has achieved a lasting reputation in England, and the name of Van Mons in Belgium is equally well known as the raiser of numerous Pears, the greater part of which have not retained the position he claimed for them. The Pear known by his name, the "Van Mons," (Leon le Clerc) not being a seedling, but named by the raiser (Leon le Clerc) as a compliment, the compliment being returned by a Pear named Leon le Clerc (Van Mons), a very inferior fruit, and fit only for the kitchen.

The number of Pears described by André Leroy and Dr. Hogg testify to the persistent attempts of seedling fruit raisers to obtain Pears of superior quality. It is natural to suppose that for this purpose the fruit selected for sowing would be of the best quality, and yet how disappointing are the results. New fruits appear and disappear in regular order, for whether the failure is caused by soil or climate, it is seldom indeed that varieties carefully cherished by the raiser fulfil the description given of their qualities.

The eccentric differences observable in Pears alone are exasperating. Crossing with sorts possessing superior qualities does not appear to give any special results; there is always the element of chance, and the careful experimenter is beaten by a

chance-grown seedling. The Duchesse d'Angoulême, a most popular Pear in France, the climate being better suited for its development than England, was found in a farm garden near Angers; the Baurré de Rance also being derived from a small village garden in Flanders. There is a strange adherence to the prototype in some Pears, the Jargonelle for instance. This Pear is a standard of excellence of some. Under the name of Epargne it is said by Andre Leroy to have been a popular Pear in France in the year 1580. During this long period there does not appear to have been an exact reproduction. Synonyms there are in plenty, Leroy gives twenty-two, but there is not a hint that they represent seedlings.

One of the oldest known Pears in England, the Autumn Bergamot, said to have been introduced by the Romans, has seedlings in plenty, and a long list of synonyms, but apparently no exact reproduction. The seedlings are earlier and later, larger and smaller, but none are exactly like the prototype. Another popular Pear, the Marie Louise, persists in keeping the place it has gained; numerous synonyms, but no seedlings which exactly reproduce the original. This Pear, from its excellent quality, must have been a source of many experiments. Of other typical Pears which have not been reproduced the following will be familiar examples:—Williams' Bon Chrétien, Louise Bonne of Jersey, Glou Morceau, Doyenné du Comice, Passe Colmar, and Easter Beurré, though they have been in existence long enough to have produced many seedlings. I have raised seedlings from these varieties, and have not gained a single fruit like the parent, and in fact all have been more or less worthless.

As with Pears so with Apples. The Ribston Pippin has not to my knowledge been reproduced; it is said to have been raised from a chance seedling. The Wyken Pippin, a very old and esteemed variety, has not reproduced, or the King of the Pippins, and Golden Pippin. Old Nonpareil, of which the seedlings are nearer the prototype than most of the old varieties, is not exactly reproduced.

The Peach is perhaps the fruit which approaches more nearly reproduction than most, but does not differ much from the apparent rule of diversity. The Grosse Mignonne, Bellegarde, and Madeleine have numerous seedlings which approach the originals in quality, but differ in the flowers and glands. The catalogue of the Royal Horticultural Society enumerates forty synonyms of the Grosse Mignonne. These do not appear to be seedlings, but the names seem to have been given by those who have grown the sorts, but lost the original names.

Nectarines are subject to the same law. The Elrue and Violette Hâtive seem to have kept to their types. The Plum has also an apparent fixity of tenure. The Green Gage, which was introduced into Europe many centuries since, seems to have adhered to its prototype, although it is said to be raised from seed, with the result of perfect reproduction. The number of synonyms points rather to the fact that seedlings vary, as do the seedlings of other classes. The Early Prolific, of which I have raised many seedlings, does not reproduce itself, and the fruits differ essentially from the parent.

Cherries are also subject to the same law. The number of synonyms accorded to the May Duke, Bigarreau, and the Reine Hortense seem to show that exact reproduction has failed. The subject is interesting, and is capable of much extension. In our uncertain climate the aid of glass is almost absolutely necessary, and the experiment, if a man wish to see the results, should be begun at an early age.—T. FRANCIS RIVERS. (*Read at the Horticultural Club.*)

HARDY FLOWER NOTES.

RUDE and boisterous as are many of the days of Amazonian March, as the Poet Laureate aptly calls the month, they bring us new revelations of the loveliness of early flowers. They come with timorous feet, shyly peeping out upon us from many a corner. So lovely are they, so sweet and delicate, that one can only wonder at the marvellous process by which these graces of form and charms of colour are evolved from the dark earth. From that dusky mother these nymph-like flowers, pure as the driven snow or bright as the hues of the rainbow, have sprung.

See that Daffodil, with its golden trumpet with serrated mouth; that pale one, which looks as if it had borrowed from the moon its passionless light. Look at that Iris of blue velvet bedecked with gold; that Glory of the Snow, which from the hills near Smyrna once gave amid the snow the colouring of the North American *Nemophila insignis*. See these Crocuses, with their cups spread open to the sun, and think of their beauty. Are they not marvels indeed? So might we say again and again as we see that mound of *Saxifraga apiculata* spangled with its primrose flowers; that little one of *Saxifraga Boydi* with deeper coloured blooms; the Scillas, the early Heaths, the Primroses, the Snowflakes, and other flowers,

which, from the rockwork's slopes or the border's level surface challenge our notice and compel our admiration. We may too with safety say that with March has come the Daffodil.

In February, it is true, a few adventurous ones dared to thrust their trumpets through their spathes and open their flowers to win our reluctant praise. No less true is it that here April is the month in which these queens of spring receive our highest homage; yet in March, the traditional month of the flowers, there are Daffodils enough in bloom to give them the pride of place with their perfect flowers. Even now, early in the month, several are in beauty, and no one can sit down to write of hardy flowers of the season without referring to two or three.

As usual, the dainty little *Narcissus minimus* came first. A little later than in some other years has it been; but before the middle of February had come it brightened its allotted portion of a sunny rockery. A few of the blooms would have opened before the 5th of the month, but these were found by the slugs to be delicious food ere the marauders were discovered in their haunt. The next to give us pleasure were a couple of flowers of the *Sargossa Daffodil*, which, though not large, were very pleasing with their clear self-yellow blooms. There was next a race between some plants of pallidus *præcox*, minor, and one scoticus, which is perched on the top of a sunny rockery, and had been driven early to rest last year. It is hard to say which of the three was first; but all were welcome when they opened when March came in.

Now, as I write in the second week in March, the quaint *Cyclamineus major* has turned back its perianth segments, and looks quaintly pretty in its pocket at the foot of a rockery where, although in full sun, it gets its share of the water applied to the alpines above in dry weather. It looks like some freak of Nature, and had we lived in legendary times we might have imagined that some magician had sought to make a *Narcissus* into a yellow *Cyclamen*, but had been only partially successful in the attempt. One feels some pleasure in retaining this unique little flower for a few years after several failures to establish it, and it would be a victory indeed to be successful in establishing *N. triandrus*, which has hitherto baffled us here.

The bright looking *Hyacinthus azureus*, mentioned recently by the writer under the erroneous name of *Muscari azureum*, by which it is sometimes known, is yet in flower, and has done better than in any former year. Its reputation as a hardy bulb is a little "shady," if one may use such a term, and *amphibolis* and *robustus* have been recommended as being hardier. The writer has no experience of either of these, but has found the typical *H. azureus* hardy under the same conditions as *Narcissus cyclamineus*, with two exceptions. These are that it is much the better of a small piece of glass so elevated above the plants as to throw the rain off them, and a zinc ring to keep off slugs, which take pleasure in destroying the flower stems. The rain lodges in the cup formed by the leaves at the base, and if this remain too long or become frozen the flower stalk rots off. It is some trouble, no doubt, to take these precautions, but the capacity for taking pains is a characteristic which must be developed if we are to succeed with many plants in this climate.

But to return to the flower itself. The sky blue *Hyacinth* is like a Grape *Hyacinth* in general appearance. The small flowers are densely packed together in a conical raceme. The name sky blue fairly well indicates the general colouring of the flowers. The flower scape grows here to about 4 inches in height, rather less than the *lorate*, glaucous, and nearly erect leaves. The species is a native of Asia Minor, and the authority by whom it was described is Mr. J. G. Baker. A rather light and peaty soil appears to suit this pretty and distinct-looking little flower, which has a charming effect associated with *Snowdrops* and some of the yellow *Crocuses* or early yellow *Primroses*.

A pleasant surprise in the way of cut flowers came by a recent morning's post. The first box came from Mr. W. E. Gumbleton of Belgrove, Queenstown, than whom there is no one more eager to put new flowers to the test of growth, and to whom I have frequently been indebted in many similar ways. The box contained two shades of flowers produced by *Fritillaria pluriflora*. I am under the impression that this is a Californian species, but as it is not to be found in the usual works of reference one is unable either to confirm or correct this without rather prolonged search. It is a very distinct Snake's-head Lily with pink or red purple flowers. Of the two sent one is considerably lighter than the other. Mr. Gumbleton kindly tells me that these are from bulbs planted at the foot of a wall in 1895, but which did not flower last year. *F. pluriflora* is a very distinct looking and pretty little flower, not at all like the best known *Fritillarias*, with its bright coloured, campanulate twin flowers.

In the same box also came a bunch of the new yellow sweet Violet, but as the obliging and discerning sender has appended a query to the word "yellow," it is evident that he has more than

grave doubts about the correctness of the word as applied to this flower. One can only agree with him in this, as the colour is in no sense described by the word yellow. A dingy buff-white, if such can be conceived, may perhaps express it better; and it will require some further progress still before we attain what some appear to desire—a true yellow sweet Violet.

The other box contained a charming set of cut blooms of seedling Hellebores or Lenten Roses, made all the more valuable for comparison by being accompanied by blooms of the parent flowers. They came from Mr. Joseph Mallender, gardener to Miss Mellish, Hodsock Priory, Worksop. Mr. Mallender is not only an enthusiastic, but successful seedling raiser, and the flowers he so kindly sent are very beautiful indeed. The pollen parent was a rather small bright purple Hellebore, and the seed-bearer a nice white one; and the seedlings sent exhibit the influence of both. The flowers are larger and better formed, and range in colour from white, through some charming shades of pale purple or pink to deep purple. They are before me as I write, and their varied colours and fresh foliage of pale to deep green induce one to pause now and again to have another look. Although posted on the 8th of March, and not arriving until the morning of the 10th, they were as fresh as when cut. This is probably due to Mr. Mallender's precaution in giving them "a cold bath for three hours before packing them;" and others who have to pack cut blooms of the Hellebores, which are notoriously bad keepers when cut, may find this precaution a valuable one.—S. ARNOTT.

CHEMISTRY IN THE GARDEN.

(Continued from page 207.)

WE see by what has been said about the formation of soils how by the action of water, carbonic acid, and oxygen the surface of the rocks has been pulverised and worn down into soil. We have also seen how the quartz in granite and the silica in minerals like augite form sand, and how by the decomposition of the other minerals the silicates of alumina combine with water and form clay. The pieces of rock broken off the mass by the action of frost would intermingle with the clay and sand and give to soil thus formed certain properties. If the broken pieces were large they would form stones, if very small they would have the same properties as clay, while those of an intermediate form would be more like sand. By the decay of the lichens, mosses, and weeds a certain amount of decaying vegetable matter would be produced, which together with the substance formed by the decay of worms and other kinds of animal life, would form the material known as humus.

THE COMPOSITION OF SOILS.

Soils are, therefore, made up of two principal parts, (1) the mineral or inorganic, which consists of clay, sand, mineral fragments (stones), and sometimes carbonate of lime; and (2) the organic, which is the portion derived from the decay of vegetable and animal matter.

Pure clay is a substance known as hydrated silicate of alumina; or in other words it is composed of water, silica, and alumina chemically united. Pure clay would be of no value to plants, because it does not contain any constituent of use to them as food. The clays, and clayey soils in our gardens are not pure, but consist of a mixture of pure clay, silicates of alumina, tiny particles of rock, sand, organic matter, and compounds containing nitrogen, potash, soda, lime, magnesia, phosphoric acid, sulphuric acid, chlorine, and iron. Clay was first of all formed by the disintegration of the primary rocks, the particles of which settled down in the ocean to form the sedimentary rocks—slate and shale. Clayey soils of the garden may therefore be formed by the action of the various disintegrating agents, either from the primary, slatey, or shale rocks.

Pure sand is composed of two elements—viz., silicon and oxygen. This substance is, therefore, of no value to plants as food. Sandy soils always contain some clay, organic matter, mineral fragments, and compounds containing all the ingredients necessary for plant life. There is present, sometimes, in sand a large quantity of fragments of the mineral mica, when it is called a micaceous sand. Other sands contain large quantities of the ground shells of fish, and these would be known as calcareous sands. The mineral fragments (stones) are portions of rock that have been broken off the mass by the action of frost. They are generally similar in composition to the rock from which they were produced.

Carbonate of lime is never very abundant, unless the soil has been formed from chalk or limestone rocks. Humus is an organic substance, made up chiefly of carbon, hydrogen, and oxygen. It also contains a moderate amount of organic nitrogen, and smaller

quantities of the other elements, which are essential for the growth of plants.

We often hear the question asked, Is it possible for gardeners to analyse their soils? To this question we must answer No, except the gardener possesses a knowledge of analytical chemistry. He can with ease, however, make a mechanical analysis of his soil, and by this means will be able to determine how much sand, clay, stones, and humus his soil contains. Before dealing, therefore, with the elements of plant food in soils, we will give a brief description of the way a mechanical analysis can be carried out.

MECHANICAL ANALYSIS OF SOILS.

Select an average sample of soil, and after breaking it up as fine as possible, spread it out to dry. As soon as it is dry mix well together, so as to get an even sample, and then weigh from the heap 25 ozs. The 25 ozs. of soil should then be passed through a very fine sieve, so as to remove all the stones. If there be any soil adhering to the stones it must be carefully removed, and any pieces of root found remaining in the sieve must be returned to the sifted heap. When the stones have been taken away, the soil should be shaken up with rain water. After agitating the water and soil vigorously for a time, allow the vessel to remain stationary for a few minutes to permit the sand to settle, and then pour off the muddy water. By repeating this process several times, the operator will ultimately have all the mud or clay in one lot of water, and the sand in another. Now let the two vessels stand until the clay and sand have settled, then carefully pour off as much of the water as possible. The two vessels should next be placed in a moderately hot oven to allow the sand and clay to get perfectly dry, when they, as well as the stones, can be separately weighed.

When the clay and sand have each been separately weighed and the weights carefully noted, mix the two substances together again, and spread them evenly on a thin iron plate. The plate should then be placed over a fire and kept red hot for a few hours, care being taken not to allow any of the particles to blow away. As soon as the soil has burnt sufficiently, which is best determined by the change from a dark colour to a reddish hue, it should be removed from the fire and allowed to cool. The burnt sand and clay should then be weighed, and what they have lost by burning is organic matter. If the operation has been carefully carried out, the operator will know the weight of stones, sand, clay, and organic matter in his soil. One of the many soils we have subjected to a mechanical analysis gave the following results:—Stones, $\frac{1}{2}$ oz.; sand, 21 ozs.; clay, $2\frac{1}{2}$ ozs.; and organic matter, 1 oz.

The carbonate of lime is more difficult to determine than the sand, clay, or organic matter, because the quantity can only be obtained by a chemical analysis. A simple method of determining whether a soil contains much or little carbonate of lime is to pour diluted hydrochloric acid on to it. If a brisk effervescence follow it denotes that there is plenty of carbonate of lime in the soil; if a feeble, only a small quantity.—W. DYKE.

(To be continued.)

GROWING MARIGOLDS FOR EXHIBITION.

MARIGOLDS are common plants, and easily grown if you are not particular about the results; but these I wish to write about are the African and French types, which are grown extensively by cottagers and amateur gardeners for the smaller flower shows; yet how poor is the result! and from many reasons. Firstly, they start with cheap seeds which can be bought wholesale at next to nothing per lb.; secondly, they grow too many and spoil the plants before transplanting into the open ground; and finally they plant in unsuitable places.

To grow Marigolds successfully the following routine must be followed, when excellent results will be attained. About the middle of April sow the Marigold seed thinly in boxes and place in gentle heat; about 60° will suffice. As soon as the seedlings are 2 inches high transfer into a cold frame, and in a few days transplant them 4 inches apart in a shallow frame. After rooting they will require abundance of water, and should never be allowed to get dry. When the tops of the plants touch the glass, as they probably soon will do, raise the lights with a brick at both ends, on fine days removing them altogether; but be sure to replace at night, for Marigolds are tender plants, and easily spoiled by a slight frost.

For African Marigolds prepare a bed and dig in some well-decayed manure, making the soil as rich as for double Dahlias. Lift the plants with a mass of soil and roots from the frame, and plant with a spade, placing the plant into the ground up to the first leaves. They will make roots all up the buried stem. Eighteen inches apart is a good distance, while when they attain 18 inches in height they must be secured to a good stout stick. Thin out the branches to three, and remove all buds but one on each shoot. Some of these will be single, for although saved from the most double flowers some plants produce all single flowers. If the buds were left long enough the single flowered plants could be detected, but then it is too late to get the best results, so it is preferable to find you have a few single flowers than run the risk of losing your

show blooms. When the buds are thinned mulch with manure, and feed twice a week with good liquid manure, for Marigolds are gross feeders and will take the most generous treatment.

When the buds show colour they must be protected by a box of some kind having a glass top, which brings up the colour, and the centre, for to be a perfect bloom the centre must be high and the bloom smooth and circular. When the flower is being shaded the stem must be secured to a separate stake, so that it cannot beat against the shade, the flowers being easily bruised. In staging African Marigolds for show white paper collars are often used, but that is optional. The usual size of board is 5 inches from the centre of each hole, but if the foregoing cultural instructions are carried out they may be exhibited on Dahlia boards, for this is the way the writer often shows them.

The stem of the flower being large and hollow it is difficult to get them to sit well in the water tubes. This may be circumvented by having two opposite holes just under the rim of the tube, and running a pin or wire through the stem; this fixes them safely. There are only two varieties worth growing, Prince of Orange and Lemon Queen; the lemon-coloured flowers do not grow to so large a size as the orange. African Marigolds make splendid showy border plants if grown as above, without thinning and shading.

French Marigolds require the same treatment whilst in the seed beds, but when ready to plant out they must be treated exactly opposite. Select a poor piece of ground on a bank sloping to the sun, and plant a foot apart, and when in flower draw out those with single flowers. A perfect French Marigold should be high in the centre, full, and double, the petals overlapping each other, and each petal be half yellow and half darkest maroon. They are usually shown on green stands with white paper collars, but in the south no doubt this would be prohibited. The holes in the board are 3 inches apart from centre to centre.

The French Marigold is perhaps the most variable plant in existence, sometimes producing the most enchanting flowers and others in dull weather running all to self. The flowers should be cut when dry, as if cut in the wet the colours will often run. A stand of forty-eight perfect blooms is one of the brightest things in a flower show, and always attracts attention. There is only one really good strain in existence, nearly all the exhibition flowers being drawn from it. It is worse than useless to plant Marigolds under trees, especially the French; they are always a failure.

The Scotch Marigolds or Calendula are fine for beds and cut flowers. They are so durable in a cut state, lasting quite fresh for a fortnight, as also will the French type.—S. J.

FUNERAL OF THE LATE DR. HOGG.

As was indicated on page 235 would be the case, the remains of the "dear old Doctor" were interred in the London Necropolis Cemetery at Brookwood on the 18th inst.—the date of the last issue of the *Journal of Horticulture*. The funeral cortège left the residence of the deceased soon after 11 A.M., the funeral train being announced to start from Waterloo, the terminus of the London and South-Western Railway, at 11.45. There was, however, a little delay, but as the train ran direct to Brookwood without a stoppage it arrived in the Cemetery by the appointed time—one o'clock. The distance is only twenty-eight miles, but funeral trains do not travel at high express speed.

The funeral was essentially private, and was attended by few persons beyond the members of the family, in fact few could have known of the arrangements before they were being carried out. It may be said that last Thursday was a peculiarly quiet day at Brookwood, only four funerals from London, whereas on the next day—Friday—forty were arranged for.

Apart from the relatives and the nephew of the Doctor (the Rev. Alexander Rodger of Prestonkirk, who officiated), there were only present on the mournful occasion Rev. W. Wilks of the Royal Horticultural Society; Mr. William Paul of Waltham Cross (one of the Doctor's oldest associates), Mr. A. Rivers of Sawbridgeworth, representing his father, Mr. T. Francis Rivers; Mr. Herbert J. Veitch, Chelsea, representing his uncle, Mr. Harry J. Veitch, who is on the Continent, both personal friends of long standing; Mr. Arthur W. Sutton, Reading, who ascertained the necessary particulars by telegram just in time to reach the cemetery; Mr. Owen Thomas, Royal Gardens, Windsor; Mr. J. Wright, editor of the *Journal of Horticulture*; Mr. F. Broomhead, editor of its offshoot, "Poultry"; Mr. D. Morgan, and Mr. J. Chambers, heads of the advertising and printing departments respectively at 171, Fleet Street.

Expressions of regret of inability to attend were conveyed by Sir Trevor Lawrence, Bart., Philip Crowley, Esq., Rev. H. H. D'Ombraim, Dr. Masters, Editor of the "Gardeners' Chronicle," Mr. George Gordon, Editor of the "Gardeners' Magazine," Mr. H. J. Pearson, and the veteran Mr. Robert Fenn.

The coffin was entirely covered with beautiful wreaths contributed by the members of the family and friends, including Dr. Masters, Mr. Veitch, Mr. and Mrs. W. Paul, Mr. and Mrs. Arthur W. Sutton, Mr. Owen Thomas, the editorial staffs, and by the employees of the Fleet Street office.

After a violent storm in the morning the weather was fine until the procession formed in the cemetery, when another storm burst, and the chapel proved a haven of refuge indeed. The calm came quickly during the service for the grave-side proceedings; the coffin was lowered deep down into its sandy bed, strewn with flowers, the sand in due time returned to its position, and the mound encased with the wreaths sent as tributes of love and esteem by relatives and friends.

The Doctor rests by the side of his son who died in infancy, and on

the other side lie his father and mother-in-law, in the Milligan-Hogg burial ground in a pleasant position in this great Surrey cemetery. The railway passes into it between Laurel hedges; Rhododendrons and Hollies luxuriate in the sandy peat soil, and large specimen Wellingtonias and other Conifers are thinly disposed over apparently scores if not hundreds of acres of grass land and Heather, the whole resembling a gigantic pleasure ground—a beautiful resting place of the dead.

THE LATE DR. HOGG.

By the death of Dr. Hogg the horticultural world loses one of its greatest, most distinguished, and most honoured representatives. More than fifty years ago (I think in 1844) I first met Dr. Hogg in my father's nurseries, and from that time onward to the present we had been warm friends—a long and uninterrupted friendship of some fifty-three years, a friendship more firmly cemented as time went on. Not very long ago, when lamenting the death of a mutual friend, he remarked, "We know it is a condition of our existence here, and the loss of one friend should make us value more highly those who remain; in fact, bind us closer together."

The comprehensive and admirably written account of him by Mr. Wright in the *Journal of Horticulture* of last week leaves little for his other friends to say. Although a Fellow of the Linnæan Society, possessing considerable knowledge of the natural sciences, it is on his authority as a pomologist that his fame principally rests. The "Fruit Manual" (which has gone through several editions) is a work of rare merit, both from its completeness and general accuracy, and must have cost the author a considerable amount of labour. There is no book on the subject in any language to compare with it. The *Journal of Horticulture*, of which he was for many years co-editor with the late G. W. Johnson, and latterly sole proprietor, is a weekly serial on horticulture known and highly valued wherever the English language is spoken or read. Of his other works:—

For a few years I was co-partner with him and another valued friend, the late Mr. Thos. Moore, in the "Florist and Pomologist," founded by the late Edward Beck in 1848, which as an illustrated shilling monthly ran a useful and prosperous career of thirty-seven years. During our many meetings the Doctor's abiding thought was how to make the work as useful as possible. Suggestions for increasing the circulation or piling up advertisements were looked coldly on unless they tended to this end. The "Vegetable Kingdom" is also a work of great labour, and full of useful information. An essay on the "Dahlia" is also valuable, and was the book on the subject in its day. "The Gardener's Year Book," appearing annually, and the "Apple" and "British Pomology," the two latter being forerunners of his great work "The Fruit Manual," were valuable works of reference. These works I know and value, and there may be others which have not come under my observation.

Of his active work in life, I think Dr. Hogg did more than his share, and he did it well. There has been scarcely any important horticultural movement during the past forty years in which he has not been a conspicuous figure, and not a figure only, but a steady, thoughtful, and successful worker. In 1854 Mr. Thos. Rivers, of Sawbridgeworth, in a letter to the "Florist" (page 108) of that date, suggested, in conjunction with Mr. Spencer, of Bowood, the establishment of a Pomological Society. The idea was at once adopted, Sir Joseph Paxton becoming President, and Mr. Ingram, of Frogmore, being one of the Vice-Presidents, the Society being called "The British Pomological Society." This Society drew to it most of the first fruit growers of the time, and did useful and important work till 1860, when it virtually became the Fruit Committee of the Royal Horticultural Society. During its entire existence Dr. Hogg was really the head and heart of it, although he never put forth any claim to all the credit he was entitled to. He was for a time its Secretary, and wrote many of the reports of its meetings and notices of the exhibits, and was eventually one of the Vice-Presidents.

Dr. Hogg was for many years one of the most active members of the Royal Horticultural Society, first as Secretary and afterwards as Chairman of the Fruit Committee. His wide knowledge of fruits and genial manners made those meetings both profitable to the community and pleasurable to those who became associated with him. In 1866 the International Horticultural Exhibition and Botanical Congress was held in London, the Secretaries appointed being Dr. Hogg, Dr. Masters, and Mr. Thos. Moore. Three more efficient men could not have been found, and the grand success of that movement has always appeared to me to be largely due to the judgment, energy, and zeal of its three Secretaries. In the succeeding foreign international exhibitions which took place at St. Petersburg, Amsterdam, and Brussels Dr. Hogg was again a distinguished official.

But his interest in nature and society was not confined to horticulture and botany; he had read much in every branch of natural history, and numbered among his friends and acquaintances some of the highest and most cultivated members of society. The most prominent features in his nature always appeared to me to be an earnestness of purpose and an innate love of truth. Finesse and intrigue he was an utter stranger to, and instinctively shrank from those who practised or favoured them. His wide knowledge on horticultural matters he was always ready to impart without any assumed superiority or prospect of self-interest. I recollect on one occasion, when rising from a committee-meeting, an over-zealous friend remarked that he had voted against his own interests. He replied, "Never mind; it was right." To young gardeners trying to fight their way up in life, and to gardeners generally, he was always ready with counsel and help given in such a way as not to raise a blush on the cheek of the most sensitive.

We were rivals in one point only—the formation of a horticultural library, but in this each took a pleasure in informing the other of the when and whereabouts of any new or scarce book. Once in conversation I mentioned that I had been looking for an old book unsuccessfully, when he said he had two copies of it and I was welcome to one of them. It would be easy to write more, but with me it would only be a repetition of what has been already well said. Many of us will miss him sadly in the future, and those who knew him most intimately will say with most fervour, "Verily in him a good man has gone to his rest." But there is some consolation left for those who loved and esteemed him that, "To live in others' hearts is not to die."—WILLIAM PAUL, *Waltham Cross*.

MAY I be allowed, as one of the late Dr. Hogg's oldest friends, to add my testimony as to the sterling worth and many admirable qualities, which were perhaps not so apparent to the public as might have been expected, owing to his singularly unobtrusive and amiable character. This quality led him to keep his undoubted talents often in the background when associated with colleagues, many of far less mental calibre than himself, perfectly contented so long as the object in view was done, and fairly well done.

Dr. Hogg's connection, as Technical Editor of the "*Herefordshire Pomona*," a circumstance omitted in Mr. Wright's life-like and otherwise exhaustive obituary notice, bears out the above statement—a work enriched from the accurate and reliable stores of the "*Fruit Manual*," but sadly impoverished and lessened in value as the *Pomona* of the century, by the absurd discursiveness and foreign matter arbitrarily introduced by the local editor.

Among the many excellent traits in Dr. Hogg's character, none struck me more than the lively interest he took in the young, and the readiness with which he placed his time and talents at their service. My two sons would, I feel sure, be the first gratefully to acknowledge the great debt they owe to "the dear old Doctor" on their embarking some years ago, in all the sanguine inexperience of youth, on their present prosperous career.

A few almost illegible lines in pencil, beginning a letter kindly finished, by his daughter, which I received early in the year, now lies before me, as the last memento I possess of my revered friend; but his genial good humoured face, his kind voice, and manly presence—these will never be things of the past, but fade out of memory only with life itself.—THE HEREFORDSHIRE INCUMBENT.

THE last number of the *Journal of Horticulture* was a very reminiscent and reflective one—the leader; our old friend Robert Fenn's characteristic autobiographical notes; your most affectionate and touching tribute to our late chief; and the sympathetic references to him and of him by "D., Deal," and L. Castle, all strike the chord of reflective memories and tender appreciative condolence.

They also cause us personally to look within ourselves, and specially we who have been readers of and sometime contributors to the *Journal of Horticulture* for thirty or forty years, and make us, as first one great name amongst us and then another disappears, ask ourselves that intensely serious question, Who next? The personality of the "Doctor" in the horticultural world has been a notable one—quiet, industrious, reliable, patient, genial. We of the *Journal of Horticulture* know of all these attributes, but especially the last one, for it is that element of geniality pervading our *Journal* which has made it more like a family paper—a paper where all meet as brethren, members of a united and loving family than a mere professional journal recording gardening matters simply as a question of business.

We owe this, in large measure (at least so I believe) to the gentle, paternal influence of our late head. It is difficult to write just what one feels. We British people feel intensely, but just because of that intensity of deep feeling, we are curiously reticent of speaking of those feelings to the world at large. However, our revered friend is now sleeping his last long sleep, the sweet sleep which He gives to His beloved, and he has gone to it with, as Macbeth says, "Those things which should accompany old age, as honour, love, obedience, troops of friends."—N. H. POWNALL, *Lexon Hall Gardens, Nottingham*.

WITH feelings of deep sorrow I desire to express my great regret at the removal from our midst of a gentleman whose name has been a household one in gardens, and will ever remain familiar to gardeners of all classes, his "*Fruit Manual*" being an enduring memorial of a great mind, keen in observation, and unremitting in effort to make clear, in a scientific and practical manner, the results of great experience. The knowledge thus placed at our command merits the expression of highest estimation and deepest gratitude on the part of all interested in "gardeners and gardening."

Though connected with the deceased gentleman in respect of the *Journal of Horticulture* for exactly thirty-six years, I have only seen him twice, when I received such cordiality of reception and heartiness of hand-shaking as to leave an indelible impression of his deep sympathy with the craft, however humble the member, and of liveliest interest in the profession, with unsparing effort to promote its welfare.—G. ABBEY.

It was not till I opened my copy of the *Journal of Horticulture* last Friday morning that I learned the sad tidings of the death of Dr. Hogg, whom I greatly revered, and whom for five years I have regarded in the light of a very kind friend. The mournful news, however, was not unexpected. Not long previously I had learned from his friend of fifty

years, Mr. William Paul of Waltham Cross, that the venerable Dr. was in a critical and dangerous condition.

It was at Mr. Paul's beautiful place in Hertfordshire, Waltham House, formerly the residence of Anthony Trollope, the eminent novelist, that, through the thoughtful kindness of the great horticulturist, I first became personally acquainted with the consummate pomologist. I was on that occasion, when accompanying him through the nurseries, much impressed by his charming simplicity of manner, his utter absence of all assumption, the small importance he seemed to attach to all the knowledge he possessed, and especially by the peculiar amiability and affectionateness of his nature. Reverence was one of his noblest characteristics. To him, as to Cowper, Nature in all her myriad manifestations of manifold beauty and infinite expressiveness, was but a name for an effect, whose cause was God.

It was easy to see that by Mr. Paul and his family he was, in virtue of those attributes which I have endeavoured to indicate, greatly beloved. Nor can I wonder at this when I remember his many kindnesses to myself. Immediately after that memorable visit to Waltham he sent to me as a present his comprehensive "*Fruit Manual*," with a characteristic inscription on the title page, a work which was to me a marvellous revelation of the capabilities of human knowledge, and which will ever remain one of my most treasured and precious possessions.—DAVID R. WILLIAMSON.

ON opening the *Journal* last week (March 18th) a feeling of deep regret took possession of me on reading of the death of Dr. Hogg, the conductor of this paper for so great a period of time. To many gardeners who, like myself, have read the *Journal* for many years the name of the great pomologist has been as a household word to them. His labours in the science of fruit culture and nomenclature has been immense, to say nothing of the secretarial work with that splendid international exhibition of May, 1866, held at South Kensington, the like of which, I should say, has not been seen since. His work and support in connection with the Royal Horticultural Society deserved the gratitude of all the gardening community, for anyone who read the reports of meetings at South Kensington twenty years ago or so could well see that the Doctor's support was on the right side—that of horticulture.

He was a gardener's true friend, and many of the craft has had cause to be grateful for the interest he has taken for them. I for one have. It was my privilege on one occasion, now some years ago, to see him in his study at his London residence, and his kindly words and advice to me on that occasion, just then entering upon a new situation, I have never forgotten. His decease, after such a long and honourable career, is a loss to the horticultural world, but his works on fruit and other subjects will live long after him.—A. HARDING, *Orton*.

MAY I join in the expression of regret at the sad news of the death of Dr. Hogg? My acquaintance with him was limited to correspondence connected with the *Journal*, but it was sufficient to give me a high idea of our lost chief's kindly nature. From one and all connected with the *Journal* with whom I have come in contact I have ever experienced the greatest of kindness, and the good Doctor, to the best of his ability, helped to form and strengthen the feeling of friendship. Even a brief note, which, in the hands of many, would have been confined to its bare subject matter, would contain a few friendly words appreciated at the time, but doubly prized now when the hand, feeble as it was even then, which penned them is now at rest. Small is the pebble I can add to the cairn raised in memory of Dr. Hogg, but it is the offering of respect and sorrow.—S. ARNOTT.

IT was with deep regret that I learnt of the death of my old acquaintance, Dr. Hogg, when I opened the pages of the *Journal of Horticulture*. His memory will ever be associated with the much appreciated intercourse I once had the privilege of enjoying with him at a Fruit Conference held at Hereford, when he kindly invited me to assist him in the awards, and I treasure the copy of the "*Fruit Manual*" he subsequently presented to me. I have a vivid recollection of receiving his genial greeting, alas! for the last time when at the Temple Show last year. I perused with deep interest the sympathetic memoir of our dear old colleague; the perusal of it also deeply affected my wife, who also had ever cherished a feeling of high regard towards Dr. Hogg. The Rev. H. H. D'Ombra's and Mr. L. Castle's tributes of the lamented Doctor in the *Journal* must have embodied the sentiments of scores of friends and readers of the *Journal*.—WILLIAM GARDINER.

I FEEL I must express my sorrow and regret at the death of Dr. Hogg. He has had a long life, and spent it well in the interest of horticulture, as evidenced by his well-known works and the long conductorship of the *Journal of Horticulture*.—E. D. SMITH.

LAST week's issue of the *Journal* will be read with a particularly sorrowful interest, and will occasion a widespread, silent, sympathetic sorrow that will be deep and sincere. I am sensible of my inability to express what I would say in tendering my condolence at such a time as this; but the memory of him will be refreshed by kindly remembrances.—JOHN E. JEFFERIES.

IT was only on opening the *Journal* on Friday that I learnt the sorrowful news of the dear old Doctor's end. Even though meeting him but occasionally, as I did, one could not be unmoved at the loss of so kindly and loveable a friend as he has always been through many years.

It is a source of much regret to me that I did not learn of the event in time to pay a last tribute of respect to his memory by attending at the interment; but the recollection of his invariable kindness and consideration will always be held in grateful remembrance.—GEO. SHAYLER.

OLD friends can never be replaced, and old comrades and fellow workers when taken away leave a sad gap. We miss the cheery intercourse, the bright smile and pleasant word, and life seems poorer and duller. In our old friend's case we have the satisfaction of knowing that his life's work was well done, and that he had earned his rest. He had made for himself a distinguished name—not as a warrior or artist, but as a gentle craftsman, on the lines of our common ancestor, "the grand old gardener." He has gone to see the immortal flowers, that are untouched by blight, and feel no nipping winds and cutting frosts; and while we think tenderly and sadly of him, we will rejoice at his safe arrival in the land where there is no more pain. Our sympathies are with all those who have lost in the good old Doctor a true friend.—HELEN GRACE.

[Kindly references are also made by Mr. David Thomson, Mr. John Thomson, Mr. G. W. Summers, Mr. A. Pettigrew, and incidentally by many other correspondents. We have been compelled to abridge some of the communications above inserted.]



WEATHER IN LONDON.—Though not quite so much rain has fallen during the past week as was the case in the previous seven days, the weather has not been wholly favourable. Several days have been wet in the mornings and finer after noon and in the evenings. Tuesday was a lovely day, the sun being bright and very warm. On Wednesday practically the same conditions prevailed.

— WEATHER IN THE NORTH.—A great deal of rain has fallen during the week ending the 23rd, no day being fair throughout, and squally winds have been frequent. Sunday was pleasant. A westerly gale rose on the afternoon of Monday and continued throughout the night, but fell towards morning. There is much need for dry weather, especially for lands where Beans are grown.—B. D., *S. Perthshire*.

— ERICA MEDITERRANEA HYBRIDA.—For a bright display in spring this plant has high qualifications. The bright red flowers commence to open early in February, and continue to do so until the end of March. From general appearances, at first sight this plant might easily be taken for a tall-growing form of *Erica carnea*. On closer examination, however, the flowers are found to be produced in longer spikes, and the habit of the plant is more free generally. It is, however, dwarfer, and appears to flower earlier than the typical *Erica mediterranea*. General appearances suggest it to be a hybrid between *E. mediterranea* and *E. carnea*.—W. D.

— INFLUENCE OF WIND ON TREES.—There can be no doubt but that where trees are properly secured wind exercises upon the stems and branches healthful effects. The motion created by the wind, and this is invariably the most excessive when trees are leafless, serves to harden the woody fibre and to help in developing cellular tissue. Fir trees during winter no doubt do hold much wind and are in hurricanes severely tried, but generally the harm wrought amongst these by gales of wind is very much less than would have been the case were the ordinary deciduous trees in leaf. Possibly the turpentine, always so plentiful in Fir trees, renders the wood more tough, and to use a common term lissome. True, Fir branches will snap sharply under an undue weight of snow, but that is pressure very different from the lateral pressure of wind. A very curious effect of wind pressure is sometimes seen in open places where south-west winds blow strongly and unbroken, especially on fruit trees. In these cases all the head growth seems to bend towards the north-east, and no sun force seems capable of bringing it back into its normal condition. Aesop in one of his fables represents the sun as being more potent in removing the traveller's cloak than the fiercest wind, but it is evidently not so in the case of trees. On the other hand, where fruit trees are somewhat sheltered from winds, the sun then does exert great attractive power. At this moment of writing a fierce hurricane is blowing, and one's thoughts are turned naturally to the newly planted trees of all sorts, with sympathy for those whose needful supports have not been furnished.—A. D.

— GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Mr. H. Morgan Veitch has forwarded to the Secretary of this Institution a cheque for £60 2s. 2d., being the net proceeds from the performance of the comedy-opera "Dorothy" at St. George's Hall in aid of the "Victoria Era Fund."

— LONDON ALMOND TREES.—These trees, which have been freely planted in suburban gardens, especially perhaps in the south and western parts of the metropolis, are now in full beauty. Owing to the absence of east winds the flowers are larger than usual, they are also borne in such profusion that the trees resemble gigantic silvery bouquets.

— SPRING BLOOMING SHRUBS.—The great value of early blooming shrubs is now manifest, for even whilst the March weather is often cold and stormy yet we see the various beautiful and golden flowered Forsythias coming into abundant bloom, and even in cold and somewhat exposed positions making shrubberies gay. The scarlet Ribes is coming rapidly into bloom, and the deeper coloured *Pyrus japonica* is already rich in colour. Very pretty also are the various forms of *Daphne Mezereum*. The very early *Azalea japonica* has been flowering for some time. This very early variety ought to be planted in clumps, and where some shelter from north winds is furnished. In proper soil and in shelter various of the earliest blooming hybrid *Rhododendrons* have long been blooming abundantly, and the pretty *Andromeda* and *Laurustinus* are pleasing. Because other hardy flowers are yet so few, all the more should we encourage early blooming shrubs.—D.

— HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—At a meeting of the above Society, held in the Parish Schoolroom on Tuesday, March 16th, a paper was read by Mr. F. Mason, gardener to A. Smith, Esq., West Hill, on "The Narcissus." The essayist would like to see these beautiful bulbs more generally cultivated in this country than is at present the case; he does not see why Dutch produce should monopolise the English markets when they can be grown as well, if not better, by Englishmen. He set forth the many and various ways in which the *Narcissus* can be utilised, both inside for pots and outside for borders, flower beds, on grass, round trees, ornamental water, rockeries, and many other places, in which the plants thrive and produce masses of bright golden flowers so acceptable during the early spring months.—F. L. T.

— TOP-DRESSING LILIUMS.—Where *Liliums* have not been repotted or top-dressed in the autumn the benefit accruing from a liberal top-dressing at the present time will be apparent, not only by the vigorous growths made during the coming summer but also the improvement in the flowers, and will in many cases put weakly bulbs into good condition for repotting in the autumn. Our pots are just being lifted out of a plunging of coal ashes in a cold frame, and the top-dressing which was applied last October is almost a mass of white fleshy roots, which will again receive another supply of fresh material previous to their being placed in a cool house. In top-dressing remove as much of the old soil as possible, and fill in with a compost of good fibry loam two parts, and one each of red sandstone broken up and horse droppings, making moderately firm. We find no compost to suit us better.—GROWER.

— THE GARDENERS "UNITED."—The fancy for shortened titles has led to the calling of the United Horticultural Benefit and Provident Society by the above pithy appellation. May the members always be as united in spirit and in practice as they were when I had the pleasure to preside over their annual meeting on the 8th inst. Recently I attended in London also an annual general meeting of another well-known Society, when the large room was full of foul tobacco smoke, the members seeming incapable of transacting a couple of hours' business without smoking. To enjoy themselves in that way is one thing; to inflict an abominable nuisance on other members who do not smoke, and who have the fullest right to be present, is quite another. Possibly the *Chrysanthemum* temperament is of so excitable or irritable a kind that it cannot be brought calmly to discuss business matters unless under the influence of an anodyne. What a striking contrast was the conduct of the members of the "United." They sat out a couple of hours, many having previously had an hour's attendance in Committee, without even thinking of smoking; and I did not see that one member seemed irritable in consequence. Thousands of business meetings are conducted in this country, and thousands of gatherings and functions take place without the introduction of this undoubted infliction upon those who do not indulge in the habit. Until the *Chrysanthemum* men learn better manners they will not see me at their meetings again.—A. D.

— **BULBS AND CUT FLOWERS.**—Mr. H. B. Greenfield writes:—"I am particularly anxious to ascertain the total value of bulbs imported into London annually, and also the total value of cut flowers at Covent Garden. Can any reader help me? I should esteem any information."

— **AZALEA INDICA ALBA.**—In looking through our single white Azaleas I fail to find one so pure in its snowy whiteness as the old but ever useful Azalea alba, where it can be easily distinguished from any other variety. True, it is not such a quick grower nor does it possess the handsome foliage of many of the newer varieties, but when we come to its blooming qualities, its lasting properties when cut, and its value to those who have to keep white flowers for wreaths and crosses, we must have something good ere we can part with an old and tried friend. —**FLORIST.**

— **BIRMINGHAM GARDENERS' ASSOCIATION.**—Under the title of "Bulb Culture in England," Mr. W. Spinks read a paper contributed by Mr. F. W. Burbidge, Trinity College Botanic Gardens, Dublin, in the presence of a good assembly, presided over by Mr. W. B. Latham. Considering his well-known, intimate knowledge of bulbous plants, and of the essayist's graphic and facile pen, it may be readily assumed that the reading of the paper evoked the deepest interest, and resulted in an interesting discussion. [An instalment of Mr. Burbidge's excellent and suggestive paper appears on another page.]

— **PRESERVATION OF FLOWERS.**—The following is a very old method of keeping flowers without loss of colour. Dry some very fine, pure silicious sand in the sun or oven; then take a wooden, tin-plate, or pasteboard box sufficiently large and deep, and place your flowers inside erect; then fill the box with sand until this last is about an inch above the top of the flowers. The sand must be run in gently so as not to break the flowers. Cover the box with paper or perforated cardboard, and place it in the sunlight, oven, or stove, continuous heat giving the best results. After two or three days the flowers will be very dry, but they will have lost none of their natural brilliancy.

— **CINERARIAS.**—I have often wished that Mr. James of Farnham Royal, who always shows such wonderfully perfect Cinerarias in the spring, would put a dozen of his best varieties, of which stock is always kept, into the market. It would be interesting then to see how near to the same remarkable pitch of excellence seen in Mr. James' plants other growers could produce them. Big enough the blooms are certainly, and in substance, colouring, clearness of marking, and form no flowers could be better. I hope none will produce larger blooms. The exceeding dwarfness seen in the plants is partly due to the habit of the strain and partly to the cool culture given, with ample light and air. Those who grow Cinerarias for very early blooming must largely force, and of course the plants are drawn and the blooms somewhat demoralised. Strong feeding is a mistake, and should not be encouraged. Mr. James does not feed materially, and pots firmly.—**A.**

— **ROYAL METEOROLOGICAL SOCIETY.**—This Society has for many years past held an exhibition annually, which has been devoted to some special class of meteorological instruments. This year the Society has arranged an exhibition of meteorological instruments in use in 1837 and 1897, in commemoration of the Diamond Jubilee of H.M. the Queen. The exhibition, which was opened on Tuesday the 16th instant, is held in the large Library of the Institution of Civil Engineers, Great George Street, Westminster, S.W. The most interesting exhibit is a railed-off enclosure about 12 feet square, covered with green baize, representing a typical climatological station of the Royal Meteorological Society. The exhibition will remain open until Friday the 19th inst. In connection with the Royal Meteorological Society's special exhibition of instruments, a lecture was delivered on Wednesday evening the 17th instant by Mr. G. J. Symons, F.R.S., on "Meteorological Observations in 1837 and 1897." After describing some of the instruments in use at the commencement of the Queen's reign, the lecturer stated that he had collected all the known records of rainfall for the year 1837, and that he was able to give the total rainfall for that year from 161 stations. An account was then given of the meteorological instruments in use at the present day, reference being made to the barometer, thermometer, hygrometer, rain gauges, anemometers, self-recording instruments, &c. The methods adopted for registering the duration of sunshine, and the amount of evaporation were next described. Allusion was also made to the help which photography has rendered to meteorology, especially in relation to the forms and movement of clouds, &c. Mr. Symons concluded his lecture by exhibiting a map showing the state of the weather over Western Europe at 8 A.M. the same morning. The lecture throughout was illustrated by numerous lantern slides.

— **TADCASTER PAXTON SOCIETY.**—At the weekly meeting of the above Society, held on Thursday, March 18th, an excellent paper was read by Mr. Clayton, the Gardens, Grimston Park, on "Hardy Perennials." He described the formation of borders, situation, arrangement, and selection of suitable plants, propagation, and cultural routine. His remarks were listened to with very great interest. A very hearty vote of thanks was accorded to Mr. Clayton.—**J. S. S.**

— **THE WEATHER AND FRUIT PROSPECTS SOUTH OF IRELAND.**—The month of March so far has been very inclement, and the temperature uniformly low here. The snow is on the hills around, although it fell as sleet or wetted snow in the lowlands. Fortunately for tender opening blossoms such as Apricots, Peaches, and Nectarines on south walls, not protected, and Jargonelles and Early Rivers Plums in the open garden, there has been no frost in the south of Ireland during the month, presumably owing to the wind steadily veering between south and west. On three nights during the month here my outdoor thermometer registered 34°, perilously near the freezing point. At present all garden and farm land is saturated—so different from the customary dusty, dry, biting March winds. All crops must necessarily be backward. I cannot remember brighter fruit prospects on any former year if all goes well.—**W. J. MURPHY, Clonmel.**

— **NEW CLASSES AT SHOWS.**—I read with much interest last autumn the desire expressed by some of your readers for new classes at flower shows, and I think it may interest some to hear of two novel ideas which were carried out at a small exhibition held here last November. The first was a class for any design, with or without ribbon, not mentioned in any of the preceding classes. It called forth keen competition, there being thirteen entries. The first prize was awarded to a bridesmaid's staff with Chrysanthemums and bronze foliage with ribbons. Amongst the other entries there were several most attractive designs, including two tastefully arranged sets of table vases, a decorated banjo, &c. The other novelty was a special prize to be voted for by the visitors to the show, each visitor to receive one vote. This proved a great attraction, and the hour for the result to be known was waited for with great interest by all concerned. It was eventually awarded to the bridesmaid's staff, but it was closely run by another entry in the same class, and a very charming basket of Chrysanthemums.—**C. F. W., Fairford.**

— **GRASSENDALE SHOW.**—The seventh annual exhibition was opened in the Grassendale Parish Room, and was ahead of previous efforts. The Secretary and Committee are deserving of every credit for bringing about such a floral treat. There was an increase of exhibits this year; they numbered 140. The Staging Committee did their share of the work in a capital manner, and it is pleasant to record an excellent attendance of visitors. The principal prizewinners were Messrs. O. H. Williams, W. J. Davey, R. P. Houston, M.P., A. L. Jones, E. Pryor, W. C. Atkinson, E. Lawrence, W. B. Bowring, C. Langton, and Mrs. Duncan, their contributions being of the highest possible standard of merit. Perhaps the most noteworthy feature in the show exhibiting the highest culture was a splendidly grown Rose of Madame Berard, carrying fifty open blooms and the same number of buds. This was staged by the Hon. Secretary, Mr. Fawkes, gardener to C. Langton, Esq., Aigburth, and he had every reason to be proud of it. A large share of work was accomplished in a cheerful manner by Messrs. W. Blomily, J. Whitfield, A. Bryers, and E. Evans.

— **WOOLTON GARDENERS' MUTUAL IMPROVEMENT SOCIETY.**—On Thursday evening the Mechanics' Institute presented an unusually bright appearance on the occasion of the closing meeting of the session, when, as for many years past, the Committee had presented to the members and friends a rich floral treat, combined with an attractive musical programme. The new Secretary, Mr. R. G. Waterman, has always been to the fore in such work; he has laboured diligently to make the Society's undertakings a great success, and is deserving of the highest commendation. To one and all the meeting proved of the greatest interest, the charming spring flowers being greatly admired by the large number of visitors. The thanks of the Committee are due to the following gentlemen for their kindness in sending and staging such splendid exhibits—viz., Mr. Todd, gardener to Holbrook Gaskell, Esq., Woolton Wood; Mr. B. Cromwell, gardener to T. S. Timmis, Esq., Cleveley; Mr. J. Glover, gardener to Col. Walker, Gateacre Grange; Mr. Jellicoe, gardener to F. H. Gossage, Esq., J.P., Woolton; Mr. T. Carling, gardener to Mrs. Cope, Woolton; Mr. G. Eaton, gardener to Col. Shirley, Allerton; Mr. J. McColl, gardener to T. Hughes, Esq. The programme of music was most successfully rendered, and a balance of about £3 will be handed to the Victorian Era Fund.—**R. P. R.**

RHODODENDRONS AT KEW.

RHODODENDRONS, evergreen and deciduous, form one of the most striking of the many groups of beautiful hardy shrubs at Kew during spring. When the weather is mild, from the beginning of January until the end of June, one or more representatives of this charming genus of plants are to be found in flower. At the present time (March 9th) several very pretty species and varieties are to be seen in flower in the Rhododendron dell, and in the borders devoted to Ericaceous plants near the temperate house.

In the dell some of the most striking are *R. fulgens*, *R. Thomsoni*, and *R. Nobleanum*. The first-named is a most beautiful species with bright deep red flowers. Of this, Sir Joseph Hooker wrote, "This is the richest ornament of the Alpine regions of the Sikkim Himalayas." The individual flowers are about 2 inches across, and produced in closely packed medium sized trusses. It is figured in the "Botanical Magazine," t. 5317.

R. Thomsoni is also a native of the temperate Sikkim Himalayas. The flowers are fleshy in texture, blood red, drooping, 2 inches in length, by the same in diameter across the mouth, and produced nine to twelve together in loosely packed trusses.

R. Nobleanum is a red flowered hybrid, between *R. arboreum* and *R. caucasicum*, and besides being a useful garden plant it is interesting on account of its being the first to be introduced of the many fine garden varieties now in cultivation. Those in existence in the Ericaceæ collection all belong to the dwarf section. By far the most showy of the dwarf Rhododendrons in flower is *R. præcox*. Others to be seen are *R. dauricum* and *R. daphnoides* with rosy purple flowers, and *R. parvifolium*, a small species with purple flowers, interesting botanically but not otherwise.

In the winter garden several Rhododendrons are flowering. A large plant of *R. arboreum* is carrying about seventy trusses of bright red flowers. Several plants of *R. ciliatum* and the sweetly scented *R. formosum* are just coming into flower, whilst a plant of a charming dwarf Rhododendron, called Queen of the Dwarfs, is smothered with pure white blossoms.—W. D.

A GARDEN IN THE ISLE OF WIGHT.

[An Address (amplified) by Rev. H. EWBANK to the members of the Horticultural Association at Newport.]

(Concluded from page 188.)

ONE thing which I most earnestly recommend is an exquisitely lovely climber from Chili, *Mandevilla suaveolens*. It is nearly always grown in a greenhouse, and is classed among tender things, and few ever dream of giving it that measure of liberty which it knows so well how to use. According to the idea that protection and restraint are indispensable to it, I kept it for years under glass, and it filled up a large part of my greenhouse, to the exclusion of many other good things; but this is what happened to it—it blossomed and grew to a great extent, but it became infested with red spider and other abominations. I had the greatest possible difficulty in keeping it free from vermin; if it were beautiful and fragrant, as certainly was the case, it became a beautiful and fragrant nuisance, for it could be called nothing else. I therefore determined to try it in the open air, and to let it live or die, as it saw fit. To my great satisfaction it determined to live, and it got through the terrible frost of 1894-5, though it was cut down to the ground. It has since then quite come round, and it touches the eaves of my house again, and is strong and vigorous as before. Every building here with a suitable exposure ought to have this very beautiful climber. It grows immensely, and blossoms in July. It should be planted in April, and should not be pruned very much. It wants to have little more done to it than the excision of the weak and feeble sprays, and perhaps a slight protection in very hard frost may be given to it.

Another great triumph of the Isle of Wight and of my surroundings here is *Poinciana Gilliesi*; perhaps I may call it the best success I have ever had. It is a most beautiful flowering shrub with very nice foliage. The leaves are scattered, alternate and bipinnate, and the best part of the matter is that it seems to do better in the open air in my garden than it does in a stove or even its own native habitats. It is grown at Kew in a pot in the temperate house, and could not have been much more than 3 feet high when I saw it last. In fourth volume of the "British Flower Garden," by Sweet (which is a kind of sacred book among gardeners), these words occur about *Poinciana Gilliesi*. He says, "We have seldom so interesting a product as the present, and one so eminently deserving the attention of cultivators. It belongs to the order Leguminosæ, and grows on the banks of a river near Mendoza in South America. The flowers are large, yellow, in a terminal corymbose raceme; the petals are five, alternating with the calyx, nearly equal, sulphur coloured, an inch long, spathulate, slightly obcordate, wavy and crumpled, thin, many-nerved, longer than the calyx; the stamens are ten, separate; the filaments are long and slender, awl-shaped, bright red; anthers dark red." Sweet says his drawing was taken from a specimen which flowered in Mr. Knight's nursery, Chelsea, where the

tree has stood several years placed near the wall of a stove, which it overtops, and even exceeds the height which it attains in its own native country. No doubt this stove helped it very much, but here it had no stove at all. My thinking about it came from a remark which Canon Ellacombe made when we were talking together in his study more than twenty years ago. He said:—

"I should not be surprised if *Poinciana Gilliesi* would do well with you," and this turned out to be a very fruitful suggestion. I bought a packet of seed from Mr. Thompson, for which I gave fourpence, of Ipswich, and though I had to wait a long time for results I have been since amply rewarded. It was twelve years before any of my young trees blossomed, but since then the one I have here has gone on increasing amazingly in size year by year, and flowering with increasing profusion. It is now a picture of strength and beauty, and as its elegant foliage waves about in a very lightsome joyous manner it seems to say, "I have never given you a moment's anxiety in my life, and I never mean to give you one." But what it is coming to I cannot possibly tell. Already it is very nearly twice the size to which it attains in its own country, and it nearly touches the windowsill of the second storey in my house, and it is growing still. The eminent traveller and scientist, Mr. Alfred Russell Wallace, paid me a visit a short time ago, and he took a great interest in my beautiful shrub. He said that he was not surprised at its well-being at all—he should have expected it from what he had seen abroad. It is a matter of great regret to me that I have no specimens of *Poinciana Gilliesi* left to give away to my friends. I did give some away, and the others were lost, as I did not know their value in time.

Another handsome tree is *Paulownia imperialis*. It is very different from but nearly equal to the foregoing in beauty. It comes from Japan, and is by no means unknown in the Isle of Wight. There is a large one in the garden at St. Clare, and there are two or three at Ventnor. But it is possible that its great love of water may be new to some persons. In this respect it resembles the Quince. I had a specimen in my dry flower garden near the house for ten years or so, and it never did anything. I do not think it ever flowered in that situation, and it scarcely grew at all. As soon, however, as it was moved to the lower part of the kitchen garden, and was placed at the bottom of a slope, it altered all its performance at once; it increased in size as if by magic, and blossomed abundantly. The trunk of the tree is now nearly 4 feet in girth—before it was moved it was only like a thick stick. The flowers are Gloxinia-like and of a beautiful violet colour, and at a little distance one might fancy that a violet gauze had been spread over the tree. As it overhangs the Ventnor Road it is the commonest thing in the world to find carriages stopping close by it that the occupants may enjoy the sight; and though I do not know what they say to each other, they sometimes look as if they thought that they were gazing upon a vision which is not of earth, but of heaven. For the rest I can give little more than names. *Magnolias* ought to be much more grown in the Isle of Wight than is at present the case. I have some six or seven species and varieties, and some two or three of them are beyond all praise. *Exogonium purga* is a splendid climber, and year by year it touches the eaves of my house. *Choisya ternata* (fig. 55) is one of the best all-round shrubs I have. *Edwardsia grandiflora*, *Carpentaria californica*, *Xanthocereus sorbifolia*, *Plerostyrax hispidum*, and *Exochorda Alberti* are much to be recommended for this part of the world. *Camellias* are more hardy than Laurels. Sikkim Rhododendrons do very well indeed here if only they have some protection over their heads in a hard winter. *Ipomæa pandurata* would soon cover the whole place if it were allowed to have its way. But the enumeration must cease. Let me only say that if my remarks have proved anything they have tended to show that the Isle of Wight offers advantages which are of a very unusual kind.

We have a fringe or margin here for good which is by no means commonly known. *Narcissus triandrus*, *Poinciana Gilliesi*, *Rosa berberidifolia*, and *Mandevilla suaveolens* all unite in saying that gardening is carried on here with more of promise than can be easily found elsewhere. Of course I know there are losses to be endured. Who could expect it to be otherwise where so many trials are made? I have had the finest specimen of *Fremontia californica* in the whole country smitten to death by the sun, and soon after bleeding to death; but one must expect to put up with some adversity if after all the balance is right, and of that I am certain; and not only is it the case that so very many good things will consent to live here, but what is vastly important from one point of view is that the season for them is at least three weeks earlier than it is at Kew, and another thing is that the colours of the flowers are much brighter here than about London or in places which are more northerly still. I say, then, that we have every encouragement here for enterprise in our horticultural efforts, and I have often had a vision before my eyes as to what the Isle of Wight would become if it were really to be adorned with some attention and skill. Imagine for a moment how the Undercliff would look if it were properly taken in hand, and *Mandevilla suaveolens* were festooning itself over many a crag and *Poinciana Gilliesi* were to be common in villa gardens, and *Ipomæa pandurata* were allowed to reach the eaves of the houses, and soon in a thousand other ways that could very easily be given the aspect of the whole place would be changed and know itself again no more. It is a paradise now, but it would then be a Paradise eclipsed, and the Riviera itself would have no greater attraction to offer than might be found here.

A friend of mine and a very eminent horticulturist, Mr. J. F. Wilson of Weybridge and Wisley, was at Ventnor for his health's sake for some weeks last spring, and he very earnestly bewailed the let-alone condition

which he saw on every side. I think it gave him positive pain. "Fancy," he used to say as we walked along, "how well *Phormium tenax* would look there!" "There is the very best possible spot for *Osmunda regalis*." "Paulownia imperialis would be at home in this place

ways; but splendid they certainly are *not* by reason of the floral treasures which they contain. Let but only common justice be done to the Isle of Wight, and the Garden Isle would become worthy of its name in a far higher degree than is at present the case. An old Roman poet

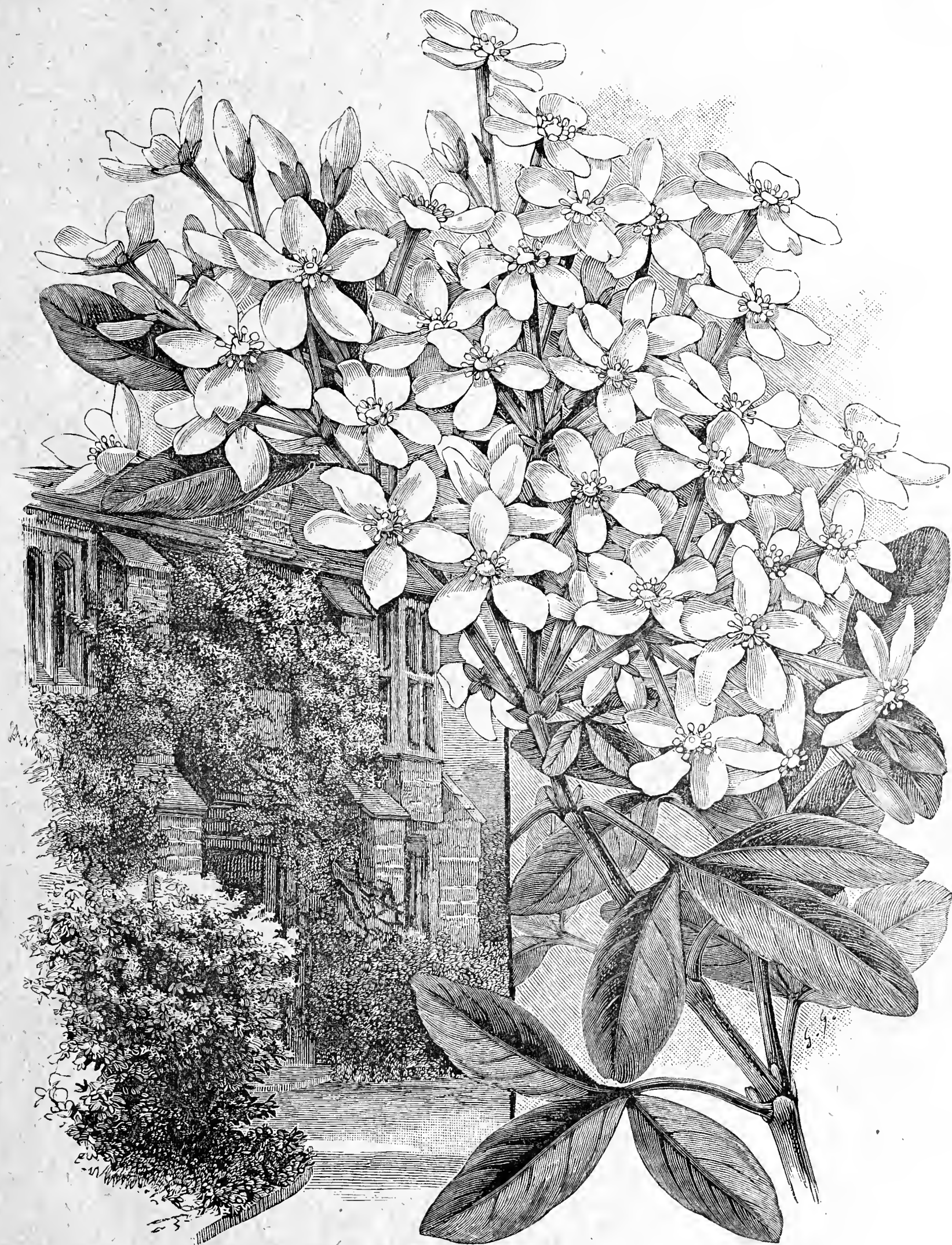


FIG. 55.—CHOISYA TERNATA.

at once," and so on *ad infinitum*. He seemed grieved to find great opportunities thrown away, and almost the same thing might be said of many splendid gardens in all parts of the island, for splendid they very often are in point of natural beauty—the sea, and their environment in other

bewailed the apathy and indifference of the people of his day in words which are not at all out of place in this island:—"O fortunatos nimium, sua si bona norint agricolæ," for a free translation of them might run thus:—"Wake up to your privileges."

ROYAL HORTICULTURAL SOCIETY.

DRILL HALL, MARCH 23RD.

THERE was another superb exhibition at the Drill Hall, on Tuesday last, when almost the whole of the available space was fully occupied. Each floral section was well represented by exhibits of the highest quality, though of course the bulk of the produce came within the province of the Floral Committee.

FRUIT COMMITTEE.—Philip Crowley, Esq. (in the chair); with Rev. W. Wilks, T. F. Rivers, J. Cheal, G. W. Cummins, A. F. Barron, T. J. Saltmarsh, G. Reynolds, F. Q. Lane, J. Smith, H. J. Veitch, G. Wythes, G. Woodward, A. J. Laing, C. Herrin, A. Dean, and J. Wright.

Scarcely any produce was sent to the Committee, but the meeting will be remembered by all who had the privilege of listening to what will be admitted as an admirable and appropriate speech in moving a resolution.

THE LATE DR. HOGG.—Mr. Wilks spoke as follows:—

Mr. Chairman and Gentlemen of the Fruit Committee,—We have all of us, I am sure, come here to-day with very contradictory feelings. We one and all want to get up and bear testimony to the great loss which this Committee has sustained since last we met; and yet we one and all shrink from doing so from a feeling (which I share with everyone of you) that there is not one among us capable of doing justice to the theme. In one sense, then, I shrink from the subject as from a task too hard for me to perform—a burden I am unequal to bear; whilst, in another sense, I feel that the duty which the Chairman has deputed to me is the greatest honour he could confer upon me.

Gentlemen, we have lost one whom all who knew him at all intimately loved sincerely; whom all at this table revered; whom every English gardener honoured; whom all pomologists in every country of the world looked up to and respected as the chief authority on fruit—our dear friend and coadjutor Dr. Hogg—the founder of this Committee—who has been taken from us.

But what a splendid work and what a grand example he has left behind! Seldom has it been given to a man to reduce to such (comparatively speaking) perfect order such an absolute chaos as he found British fruit description and nomenclature. The greatness of his work in this respect is not yet fully realised.

A Scotchman by birth, and like so many Scotchmen, of untiring energy and dogged perseverance; a man of transparent honesty of purpose and of blunt outspoken truthfulness; he hated hypocrisy and sham, whilst his heart was simply overflowing with kindness and gentleness and sympathy.

He was not like any other man. He had a very marked individuality; a sort of solidity and terseness of expression, both in word and manner, which was reflected in the picturesque ruggedness of his outward form, reminding one not a little of the massive, open, wind-swept, heather-clad hills of his own Scots land. No one who ever saw him could possibly forget him, or mistake him for any other; and no one who really knew him but now feels he has one staunch and true friend the less.

Gentlemen, we cannot but mourn for Dr. Hogg; but even whilst we mourn let us not forget to thank God truly for the man, and for sparing him to us for almost fourscore years.

I beg to propose the following resolution:—

"The Fruit Committee of the Royal Horticultural Society desire to record upon their minutes the profound estimation in which they hold the life and work of the late Dr. Hogg. The Committee recognise with gratitude that Dr. Hogg's life was one of unceasing benefit to the best interests, not only of British pomology, but also of the pomology of the whole world. Wherever fruit is grown for the benefit of mankind, there for generations yet unborn will the name of Dr. Hogg be known and honoured. The Committee can find no words to express the greatness of the loss which they in common with all English speaking fruit growers have sustained by the death of one whom all who knew him held so dear; they are forced to content themselves with placing upon record their deep sense of the inestimable privilege they have enjoyed in being associated on this Committee for so many years with so kindly and eminent a man."

The members uncovered during Mr. Wilks' speech, and the resolution was accepted in mournful silence.

What little business there was then followed, and was soon completed. The English Fruit and Rose Company, Hereford, sent a seedling Apple, *Cranston's Pippin*, supposed to be the result of a cross between the Sturmer and Ribston Pippins. Fruit medium sized, oblate, slightly angular, heavily covered with russet, especially on the upper side, lower side clear; stalk thin, half an inch long, deeply inserted; eye partly open, set in a shallow, puckered cavity; flesh greenish yellow, tender, sweet, and with some of the flavour of Sturmer, but intensified. Some Apples look better than they are, this is better than it looks. An award of merit was unanimously awarded.

THE VEITCHIAN PRIZES.—The prizes for quality in dessert Apples and Pears were awarded as follows:—Two dishes of Apples.—First, Col. Brymer (gardener, Mr. Powell), with Allen's Everlasting. Second, C. J. Massey, Esq. (gardener, Mr. J. Day), with Adam's Pearmain. Two dishes of Pears.—First prize withheld. Second, Mr. W. H. Divers, The Gardens, Belvoir Castle Gardens, with Marie Guise.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with Messrs. H. B. May, R. Dean, H. Herbst, G. Stevens, J. Jennings, J. Hudson, C. Jeffries, G. Nicholson, J. Fraser, J. D. Pawle, W. Bain, T. Peed, C. E. Pearson, C. E. Shea, H. J. Jones, E. Mawley, H. J.

Cutbush, E. Beckett, D. B. Crane, T. W. Sanders, C. Blick, H. Turner, G. Paul, O. Thomas, and J. Walker.

Mr. H. B. May, Upper Edmonton, exhibited a charming group of Crimson Rambler Roses, Clematis, and Ferns. New Camellias from Messrs. W. Paul & Son, Waltham Cross, were very beautiful. Amongst the varieties were The Duchess, Duchess of Teck, Duchess of York, and others. Roses also came from this source. Messrs. J. Peed & Sons, Norwood, staged healthily grown foliage and flowering plants, comprising Clivias, Azaleas, Dracenas, Ferns, Palms, Boronias, and others. Messrs. R. & G. Cutbush, Southgate, staged a showy collection of Dutch Tulips.

Alpine plants in variety were exhibited by Messrs. Paul & Son, Old Nurseries, Cheshunt. There were Primulas, Adonis, Anemones, Hepaticas, Megaseas, Irises, Violets, and a hybrid Rhododendron named Duke of York. Messrs. W. Gordon & Sons, Murrayfield, Edinburgh, sent a basket of Alpines. Mr. Kelf, gardener to Mrs. Abbot, South Villa, Regent's Park, sent a fine collection of Hyacinths, Narcissi and Daffodils. Messrs. Barr & Sons, Covent Garden, exhibited Narcissi in their usual style. Most noticeable were Mrs. H. J. Elwes, Queen Bess, Santa Maria, Sir Watkin, Grand Duchess, tortuosus, Empress, Horsfieldi, Henry Irving, Duchess of Wellington, Goblin, Golden Spur and Emperor.

Mr. W. Howe, gardener to H. Tate, Esq., Streatham, arranged a diversified collection of bulbous plants, in which Narcissi preponderated. The Church Road Nursery Co., Hanwell, sent Cyclamens, and Mr. G. Mount, Canterbury, superb cut Roses. The colours were very rich and clear. Mr. W. Fyfe, gardener to Lord Wantage, Lockinge, Wantage, sent Fortune's Yellow Roses, and Camellia reticulata. Messrs. J. Veitch and Sons, Ltd., Chelsea, exhibited blue Primroses and Calla Elliottiana. The Amaryllis sent by Messrs. R. P. Ker & Sons, Aigburth Nursery, Liverpool, were very good and well diversified. Winter-flowering Begonias from Messrs. H. Cannell & Sons, Swanley, were showy.

Miscellaneous foliage and flowering plants from Messrs. J. Laing and Sons, Forest Hill, were finely shown. There were Clivias, Dendrobiums, Cattleyas, Acacia Riceana, Azaleas, Boronias, Croton, Palms, Ferns, and others. Messrs. Cutbush & Sons, Highbate, staged a superb collection of Hyacinths, besides Tulips and other plants.

ORCHID COMMITTEE.—Present: S. Courtauld, Esq. (in the chair); with Messrs. J. O'Brien, De B. Crawshay, N. C. Cookson, G. W. L. Schofield, W. H. White, W. H. Young, H. J. Chapman, Thos. Chapman, T. Statter, W. Thompson, W. H. Protheroe, H. Williams, F. Mason, J. Douglas, H. Ballantine, H. M. Pollett, E. Hill, J. G. Fowler, and T. B. Haywood.

Messrs. Linden, Brussels, exhibited a collection of Odontoglossums, amongst which were some beautiful varieties. Messrs. F. Sander and Co., St. Albans, staged Cattleyas, Odontoglossums, Dendrobiums, Cypripediums, and others. Mr. S. Cooke, gardener to De Barri Crawshay, Esq., Sevenoaks, sent half a dozen Odontoglossums; Mr. W. S. Burnell, gardener to W. Ellis, Esq., Dorking, also sending Odontoglossums in good variety. Mr. W. A. White, gardener to Sir Trevor Lawrence, Bart., Dorking, sent miscellaneous Orchids of considerable beauty and interest. Mr. Whiffen, gardener to J. Bradshaw, Esq., Southgate, staged a small collection of Orchids; as did Mr. Guyett, gardener to J. Gabriel, Esq., Streatham.

Orchids were beautifully shown by Messrs J. Veitch & Sons (Ltd.), Chelsea. Quality and quantity were alike conspicuous. Odontoglossums, Cattleyas, Cypripediums, Dendrobiums, and others were represented. Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham, sent a few Odontoglossums of great beauty. There were only a very few plants, but they were of the finest quality.

AWARDS.—Floral Committee.—Silver-gilt Flora medals to Messrs. R. P. Ker & Sons, Hippeastrums, and Messrs. Cutbush & Sons, bulbous plants. Silver Flora to Messrs. G. Mount, cut Roses; H. B. May, Roses and Clematis; J. Laing & Sons, miscellaneous plants; G. Kelf, bulbous plants, and the Church Road Nursery Co., Cyclamens. Silver Banksian to Messrs. J. Peed & Sons, miscellaneous plants; Mr. Howe, bulbous plants; Paul & Son, alpines; H. Cannell & Sons, Begonias; and W. Paul & Son, Camellias and Roses. Bronze Banksian to Messrs. W. Fyfe, Camellias and Roses; and Cutbush & Sons, Tulips. Orchid Committee.—Silver-gilt Flora medal to Mr. W. C. Cookson, Phaius Cooksoni; silver Flora to Messrs. J. Veitch & Sons, Limited, W. H. White, and H. Ballantine. Silver Banksian to Messrs. J. Bradshaw, W. S. Ellis, T. Gabriel, L. Linden, F. Sander & Co., and De Barri Crawshay.

CERTIFICATES AND AWARDS OF MERIT.

Amaryllis Pera (J. Veitch & Sons, Ltd.).—A handsome brick red variety with white markings (award of merit).

Anthurium Scherzerianum Géant Sanglant (L. Linden).—A very fine variety of the type (award of merit).

Disporum Leschenaultianum variegatum (J. Veitch & Sons, Ltd.).—An effective foliage plant. The colour is green margined and striped white (award of merit).

Erythronium Nuttallianum (R. Wallace and Co. and Barr & Sons).—A beautiful pure yellow variety of *E. grandiflorum* (award of merit).

Narcissus Ellen Wilmott (Rev. G. H. Engleheart).—A bicolor of the first quality. It has the substance of Empress, but is earlier than any other of the section (first-class certificate).

Narcissus Lettice Harmer (Rev. G. H. Engleheart).—This, too, is a bicolor of merit, with a beautiful trumpet, though not quite equal to Ellen Wilmott (award of merit).

Narcissus Southern Star (Rev. G. H. Engleheart).—Belonging to the small cupped section this is superb. The cup is of peculiarly rich orange red (first-class certificate).

Odontoglossum crispum Luciani (L. Linden).—The chocolate markings of this crispum are very handsome. The ground colour is white tinged with rose (first-class certificate).

Odontoglossum Ruckerianum ocellatum (W. Stevens).—The ground colour of this handsome variety is purplish rose in the sepals and petals and white in the lip. The spots of each are chocolate (award of merit).

Polyanthus Woodside Gem (R. Dean).—A gold-laced variety of excellent quality (award of merit).

Rose Antoine Rivoire (C. Turner).—A Hybrid Tea; the colour is cream, suffused with salmon (award of merit).

Tulipa Kaufmanniana (Barr & Sons and R. Wallace & Co.).—This is a very handsome Tulip. The colour is pale lemon, with a yellow centre. On the reverse of each outer petal is a large patch of red (first-class certificate).

ALLEGED "LAXITY" AT THE WESTMINSTER DRILL HALL.

WITH your permission, I should like to publish a matter which has just come under my notice. At the meeting of the Royal Horticultural Society, held at the Drill Hall, Westminster, on March 9th a gentleman known to me, and who is a most successful enthusiast in Violet culture, sent a sport to go before the Floral Committee. The plants were lifted, placed in a box, and sent off on Monday, the 8th, addressed to the Secretary, who did not acknowledge receiving them. Not hearing any more about them, a telegram was sent to Mr. S. T. Wright, asking him to send the plants back, who in return wired that the Violet proved to be Lady Hume Campbell. A letter followed the telegram to the same effect, and also contained an expression of regret that the plants were untraceable.

I should like to ask you who is responsible for the safe return of exhibits to their owners? If these plants are untraceable it naturally leads to uncomfortable feelings. Blooms from them had been sent previously to specialists, who recommended sending them to the Drill Hall. I hope soon to hear that the plants have been found, and by whom they were taken, and trust such laxity will not occur again on the part of those who are held responsible for the return of the exhibits, or the result will be that provincial growers will not care to send exhibits.

I have noticed there is no mention of the Violets in the reports, either in the "Journal" or "Magazine," which in my opinion makes it look worse, as all the other exhibits are given.—H. PROSSER.

[In reference to the last paragraph it is right to say that it would be practically impossible for any of the gardening papers to mention even half the plants that are sent to the Drill Hall meetings. As a rule only those which are honoured, or appear specially noticeable, are mentioned in the reports of the meetings. We do not know whether the Society is bold enough to make itself responsible for the safe return of exhibits. A clause is inserted in most schedules to the effect that while the officials will take all reasonable care they cannot hold themselves responsible for injury to or loss of exhibits. We have observed that Mr. S. T. Wright is most watchful during the meetings, but seeing the crowded tables from end to end of the Hall it would obviously be a simple impossibility for him to have his eyes, however sharp, everywhere at once, and thus prevent mistakes of the nature indicated occurring. It is very regrettable when they do occur, as also is in a less degree the moving of new plants from their positions before the appointed time except by the Society's officials; for instance, artists taking plants away for sketching, and thus denying to other artists an equal opportunity for sketching them, to which it seems to us they are justly entitled.]

ROYAL HORTICULTURAL SOCIETY'S COMMITTEES' AWARDS.

YOUR correspondent "A. D.'s" latest contribution scarcely shows much advance over his previous effort either in logic or consistency, but it must be admitted that he has developed a marvellous capacity for "straining at a gnat and swallowing a camel." He is keen to discern how "diverse the conditions" between the Temple and the York and Chester Shows, but is, apparently, not yet awake to the equal diversity between the latter and a Chiswick or ordinary Drill Hall meeting, a recognition of which tumbles his original criticism about his ears. "That is enough on that point," as your correspondent remarks.

But even when we leave it, and get to another point, Mr. "A. D.'s" longings are not very much clearer. In his original letter (p. 162) he "fears" that there is not "the slightest probability that any checks will be put on the present perhaps too free granting of awards," and has "long contended that in many directions it is now time that higher standards of excellence were set up." And then the Council of the R. H. S. falls under the critic's displeasure, and he "cannot see, without the Council take action and formulate some definite rule, how any reform can be effected."

Quite clear so far, but now this craving for "reform" and "definite rule" seems to have passed away. At any rate Mr. "A. D." (p. 212) now assures us "I do not think the present too free making of awards should be restricted in the least." This is a fairly startling anticlimax, surely, especially after his censure of the Council for not having formulated a rule to restrict it.

When a man frankly admits that the granting of awards has been "too free," and demands "reform" and "definite rule" to enforce it, one is scarcely prepared to be told that he is quite contented with things as they are, and that even if the granting of awards have been "too free" he has not the slightest wish that they should be "restricted in the least."

But, without labouring further to ascertain what may be your correspondent's very latest views upon the point, we may thank him for having (when in his earlier frame of mind) called attention to a matter which seriously affects the value of the Society's awards; and it is to be hoped that the Council will take Mr. "A. D.'s" (original) injunctions to heart, and formulate, for next year's guidance of its Committees, a practical regulation aimed at a reform which has become very necessary.—F. R. H. S.

DO PLANTS "THINK?"

ALTHOUGH I have not seen a bunch of Grapes spring from the "old stem of a Vine without any leaf whatsoever," as described by your facile correspondent "The Scribe" on page 206, I have seen bunches issue direct from the buds of canes for the time of bearing Grapes, which admits of a similar explanation to that given by "A Gardener." The Vine was so "full of fruit inside" that it sent out a bunch without leaves. This is a very important point, and indicates that fertility depends on the high elaboration of the juices and storing of assimilated matter. That the Drumlanrig Vines, under Mr. D. Thomson's charge for so many years, are "so full of fruit inside" as to push a bunch of Grapes from the stem of one beneath the stage is not matter for wonder, for the whole practice of the veteran has been to get the stores of the soil into his cultured subjects, and thus bring out a maximum of useful produce of superior excellence.

Whether "The Scribe" is not writing without book in stating that "the tendril of a Vine is a changed or modified leaf," does not appear "plain and easy." Of the tendril being ennobled into a bunch of Grapes whilst embryonic by the assimilated matter "full of fruit inside" the Vine there is no question, and good service has been done by introducing the "plain, good, working gardener" into the subject. Many such gardeners achieve great results without knowing exactly the "reason why."

But the bunch of Grapes is not unique in springing from the old stem "without any leaf whatsoever," for other plants with tendrils act similarly, and some that do not have tendrils also push flowers from the old stems. Passifloras do, especially *P. racemosa*, syn. *P. princeps*, not occasionally, but annually, and sometimes two and three times a year. I had one some thirteen years with 3 feet of old stem below a stone shelf of that width, which gave not one, but many racemes of scarlet flowers. Some of the racemes were 3 feet in length. The buds actually formed in the old stem, and every one produced nothing but flowers or bracts. In this case the whole leaves and tendrils were transformed in the bud, and this itself formed of the material "inside"—the elaborated and stored matter essential to fertility. But the raceme is not a transformed tendril, as in the case of the bunch of Grapes, for no Passiflora tendril undergoes such "metamorphosis," and thus an opportunity offers for explaining the "reason why" the tendrils, as well as the leaves, disappear as parts no longer useful.

The Aristolochias also push their curious flowers from old stems in some cases, leaves being dispensed with, there not being any tendrils in this instance to transform. Numerous other instances might be cited of the higher plants at times dispensing with leaves under certain conditions, but it proves nothing of cultural consequence, as the power to so act has been derived by the presence of them concurrently or at a prior stage. The plants, as the "gardener" has it, are "so full of fruit inside" that it must come out somewhere.

As for Vines or plants having the power to "think" there may be such thing. I will say that some of them act as if they had, for many of them possess much sense, both in phænogamous and cryptogamous, especially in "smelling out" their food and utilising it to the best advantage, which is not always the case with the highest creature assuming the prerogative of thinking. What has more of "think" in them than the lowest members of the vegetable world—the Myxomycetes?

Take, for instance, the clubbing, finger-and-toe fungus, *Plasmodiophora brassicae*, the plasmodium of which creeps about in search of its essential Cruciferae. Get hold of a plant of this lowly organism, and place it on a piece of glass in rain water, just a thin film sufficient to allow it to creep about. Place it under the microscope, and then see how quiescent it is in the dry air of an empty room, where no smell of cruciferous plant comes. Leave it there, and fetch a little Cabbage-stalk or Turnip-root pulp, place on the glass away from the plasmodium, then look, see the plant wake up, stream out in the direction of the pulp, and creeping, like a snail, even leaving a trail behind, behold it pass to the pulp, and at once work as "flowers of tan" on a bark bed. Whilst active sprinkle a little lime around, but not so as to touch the plasmodium, then see the amœba-like plant shrink into a ball, a dead-like body, and strive to surround itself by a wall for protection, forming, if it can, several cells, each containing a little of the naked protoplasm.

"Think" is not the word for such action, but sound, practical, useful "sense." Pursue the matter further, and afford a plasmodium of the fungus named opportunity of choice by placing it in the centre of a piece of glass in a thin film of moisture, also equidistant from it pulp of Turnip on one side and chalk on the other. Now note the plasmodium

make for the Turnip pulp and run away from the chalk. Thus the lowly Plasmodiophora "smells out" its food.

Finally give a Plasmodiophora brassicae plasmodium no choice, but place before it a dish of air-slaked chalk lime, and note how quiescent it becomes; then watch the lime diffuse in the film of moisture till it embraces the plasmodium, and observe how the organism gets "smaller by degrees and beautifully less," nothing at last remaining but a dark stain—organic matter resolved into inorganic—the essential food of chlorophyll-possessing plants.

Now "think," and, taking a lesson from the *sense* of the plant, act in favour of the crop by applying a dressing of lime to land on which Cabbages club and Turnips finger-and-toe, using sufficient to bring that in the soil up to 2 per cent., apply at the rate of 10 tons per acre, 1½ cwt. per rod, of best chalk or land lime freshly burned, placing in little heaps convenient for spreading, covering with a little damp soil till fallen, then spread evenly, leaving for a few days, and then ploughing in, which being about 5 inches deep amounts to about 2 per cent. of lime, therefore in digging-in lime do not place it deeper. Choose a dry time for operating, July being a proper time if Turnips or Brassicas are taken after Potatoes or other early crops, or in the spring, say March, for summer crops, always with ground in good working order.

Mr. Thomson's practice with the Vines, and getting them full of "fruit inside," is that of affording them a healthy rooting medium, supplying suitable nutrient elements and proper moisture, allowing ample foliage, kept clean and exposed to light and air for the elaborating and storing of nutrient substances in the Vines—to wit, Grapes in embryo; then they are sure to come out where wanted, with an occasional freak sufficiently strange to cause people to "think," as clearly plants do in their way, if there be any meaning in their ways. Even roots run after sweet wholesome food, and will not go where soddenness and sourness prevail if choice be given. In culture the plants have often only "Hobson's choice," the thinking on their part being precluded, and in many cases there are no Grapes on the stem, because there are not any "inside" the Vines to come out, or perhaps only a few for shanking, if before that they do not twist and twirl in any direction other than of bunches. The "metamorphosis" rests with the cultivator, some Vines having so much "inside" that they will even turn incipient tendrils on laterals into bunches, that often give Grapes of excellent colour and bloom.

What a plain gardener would term the following I do not know; but there is *sense* in it, and a confirmed habit, no mere freak of Nature. The antherozoids of Ferns are small slender bodies, coiled up in two or three turns and provided with a tuft of fine hairs at one end. They are the male organs in matter of fertilisation and contained in cells, which in water or on a film of it on soil, absorb moisture, swell, and burst, thus liberating the antherozoids, which move actively about in water, and then always manage to reach the archegonia or female organs, and effect fertilisation. That is Nature. Decidedly; but let us take a few of these antherozoids, and give them choice of something sweet—say, a weak solution of sugar and something acid, such as diluted vinegar. Place the antherozoids equidistant between the two solutions, letting them have water to move about in, and if they make for that consisting of sugar and water, leaving the vinegar and water severely alone, what is that but *sense* in choosing the sweet and refusing the sour? Oh, it is Nature! Why, everything is; and it works by undeviating law, so that "think" has no place therein, but all is matter of fact. Nothing else is evidence.

Plants have a certain power of selection in matter of food, and we like to make them harmonise with our views; but there is no analogy whatever between these and those of plants, those resemblances frequently advanced having no existence but in the imagination, and belong only to the creature of all the intellects, whose "think" often reaches the vanishing point when brought face to face with the stubborn realities of disease; then real fact alone is of any service, and the more of it the better.

Inherent tendencies, such as plants twining round sticks in accordance with the sun, others doing the exact contrary; some plants growing from gloom into light, others fleeing from sun into shade, together with such variations of forms and adaptation to circumstances so that no part of the earth's surface is without some form of vegetation, are wonderful things to "think" about, but whose knoweth anything for certain about any of these forms of life has attained unto a good thing, the "reason why." Then all is "plain and easy," and needs no "metamorphosis" any more than a parasitic fungus of an endophytic nature requires leaves or roots, but dispenses with such means as absolute hindrances and of utter inutility to its mode of life.

—G. ABBEY.

[Well done, Mr. Ahbey; nothing is too great or too small for him; but does he know that those wonderful organisms, Myxomycetes, are not as much animals as plants in the "creeping-like-a-snail" stage? This, however, does not affect the general question of the sentiency of plants.]

CHRYSANTHEMUM AND STRELITZIA.—I have enclosed a bloom of Chrysanthemum Mrs. E. W. Clarke, which I think is good for so late in the season. Also a flower of Strelitzia, which is not, so far as my experience goes, found in many gardens. — E. R. WEBBER, St. Catharine's, Worcester. [The Chrysanthemum is undoubtedly good for the time of the year, though other flowers are now so abundant that autumn beauties are scarcely wanted. The Strelitzia is curiously beautiful, and might be more grown for adding the desirable diversity.]

YOUNG GARDENERS' EXAMINATIONS.

VINES—SETTING AND THINNING.

ACTING upon the Editor's suggestion in the Journal of February 12th I enclose sketches of unthinned, also of properly and improperly thinned bunches of Grapes. In each case the drawing was made from a Black Hamburg Vine. To enable the flowers of the Vine to set it is necessary that the "cap" which covers the stamens be removed to allow the pollen to disperse. Shaking the Vines every day when they are in flower materially helps to achieve this object. In the case of shy-setting varieties the hand may be drawn lightly down each bunch. A dry, warm, and buoyant atmosphere is very essential at this period.

As soon as the berries are set all superfluous bunches ought to be cut off. Do not leave more than one bunch on a shoot. The quantity of Grapes to be left on the Vine should be regulated by the amount of healthy foliage it has. When the berries are almost the size of peas they are ready for thinning. A small forked stick is useful for holding the bunches, to avoid touching them with the hands. Be careful also not to rub the neighbouring bunches with the head or arms, as this often causes them to rust. The shape of the bunch varies in different kinds of

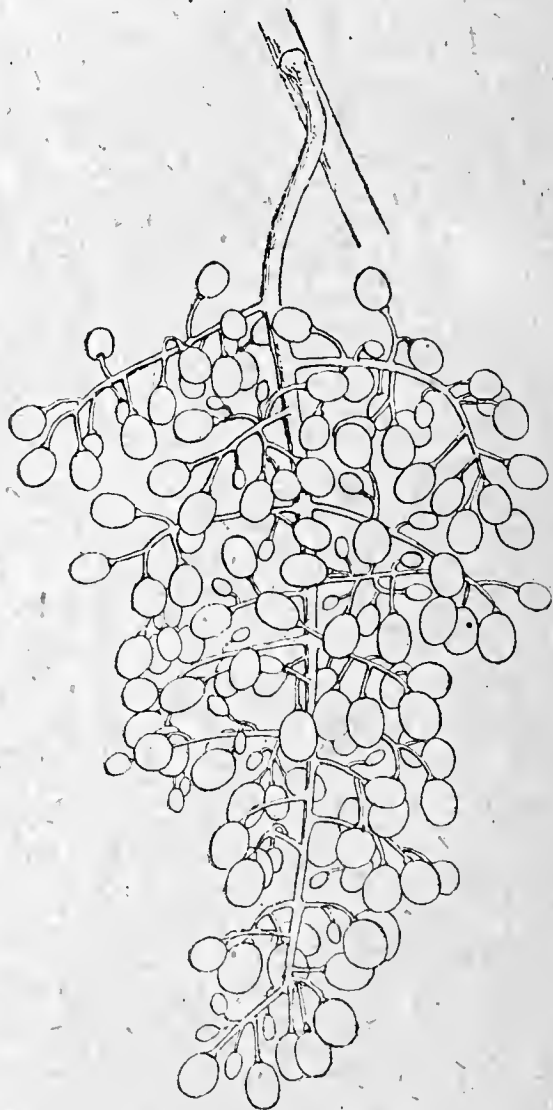


FIG. 56.—UNTHINNED BUNCH.

Grapes, and when thinning this should be considered. Some have large drooping shoulders, which require tying up lightly with matting. First dislodge all remains of the stamens, by tapping gently with the Grape scissors on the stick employed to hold the bunch; then remove the seedless berries, and those situated near and turning in towards the main stalk. The remaining berries may afterwards be thinned, so as to allow each one room for its proper development.—H. H.

[Sketches very creditable. It will be seen in the well thinned bunch that berries are left on the upper side of the shoulders, so that in swelling they will be pressed back to the stem, as they should be. The berries are also uniform in size. In neither respect is it the same with the improperly thinned example, while in this the workmanship is obviously inferior.]

TUBEROUS BEGONIAS.

It is now time to see about starting these most useful summer flowering plants which look so charming in our conservatories during the summer months.

Begonias are of easy culture, and can be produced from seed and by cuttings, tubers forming either way, and they will retain their vitality for several years if they are stored away in a warm cellar or a frost-proof shed.

The tubers should now be taken from their storing place (if not already done), and placed in shallow boxes, covering the bottom of the boxes with leaf mould, then placing the tubers on it, and partly burying them with more leaf mould. After this has been done they may be placed on a shelf near the glass in a cool house where ventilation is afforded daily in mild weather. If the leaf mould is fairly

moist they will soon make a move both in leaf and root action. After they have got a fairly good hold in the leaf mould they should be potted, and if they are wanted to be increased the tubers may be cut in two or more pieces, depending on their size.

The pots first used should be just sufficient to take the tubers so as to allow for larger pots eventually, the most useful size for flowering in being 6 and 8-inch. The plants should still remain on the shelf in the same house until the weather permits them to be removed to a cold frame, where they should be freely ventilated and shaded from the sun in hot weather.

They ought not to be allowed to flower until they are in their final pots, and all the buds should be picked out until the plants are well established in them; then remove them to the conservatory, where for the next few weeks they will be one of the chief features, arranged in a bank of Maidenhair Fern or other foliage plants, and frequently watered with weak soot water. As regards soil, I have always seen them do well in good fibrous loam and a little, but good, leaf mould with the addition of some coarse sand and old manure from a spent Mushroom bed. The pots should be clean and carefully crocked, as the watering of the Begonia must be carefully done, so as not to allow the soil to get sodden, as the roots are tender and apt to decay.

Ripening and storing the tubers, or commonly called drying them off, is one of the chief points in Begonia culture. As soon as they have finished flowering and the leaves begin to change colour and look shabby the plants should be removed from the conservatory to another house where ventilation is provided more freely, and there gradually dried off. They may be stored in a fairly warm cellar or under a greenhouse stage where the frost and water from the plants above cannot reach them. Care must be taken not to place them near the hot-water pipes or flues. Although stored away in their resting place they should not be forgotten, as if there are any mice about it is surprising what damage they will do in a couple of nights to the tubers.—W. LOCK.

DRACENAS.

In dealing with the propagation and culture of Dracenas, I will divide the subject into two groups—first, the large-leaved strong-growing varieties; and second, the narrow-leaved delicate varieties, commencing with the former. To obtain large plants in 9 and 10-inch pots, cuttings should be placed in a shallow pan or box about the end of July. I find those taken from the roots of old plants succeed the best. The roots should be cut in lengths of about half an inch, and inserted in a compost of one part leaf mould and one part silver sand. Place in

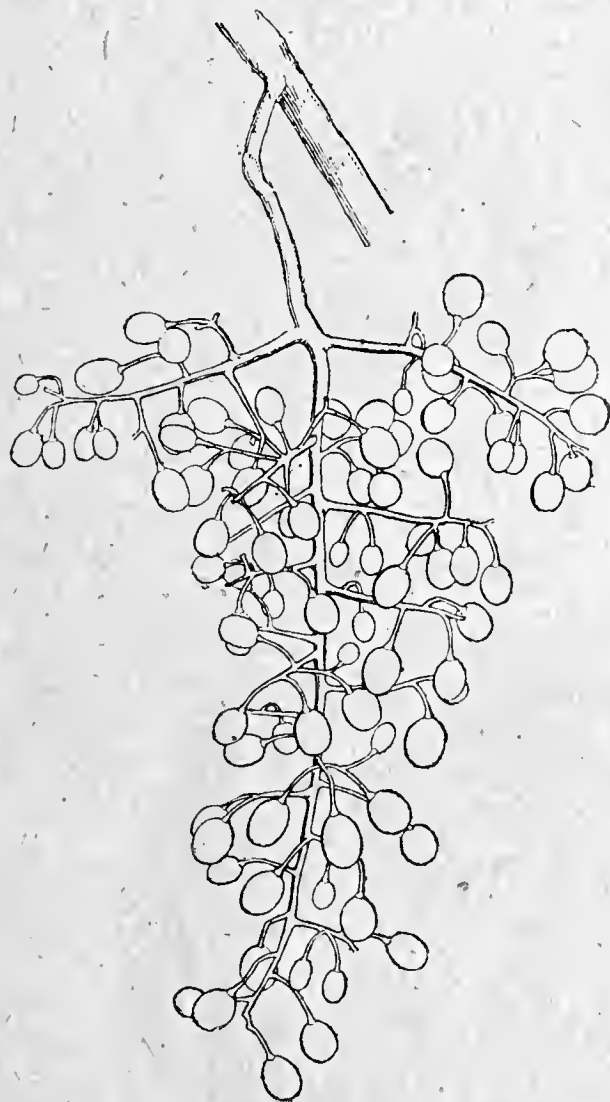


FIG. 57.—IMPROPERLY THINNED BUNCH.

the propagating box, and keep them close until small shoots appear above the soil, when they may be lightly syringed, and given a little air on bright days.

About the end of August we should have plants ready for placing in 3-inch pots, using a compost of one part good loam (not too rough), and half a part each of peat dust and silver sand; place in a propagating box, keep the plants well syringed, then little or no water will be required

at the roots. About the end of September the pots will be fairly filled with roots, when they may be taken out of the propagating box and placed on a shelf near the glass in a temperature of from 65° to 70°, never falling below 60°. They must be carefully watered through the winter or the roots will suffer.

Transfer the plants to 5-inch pots about the middle of January in a

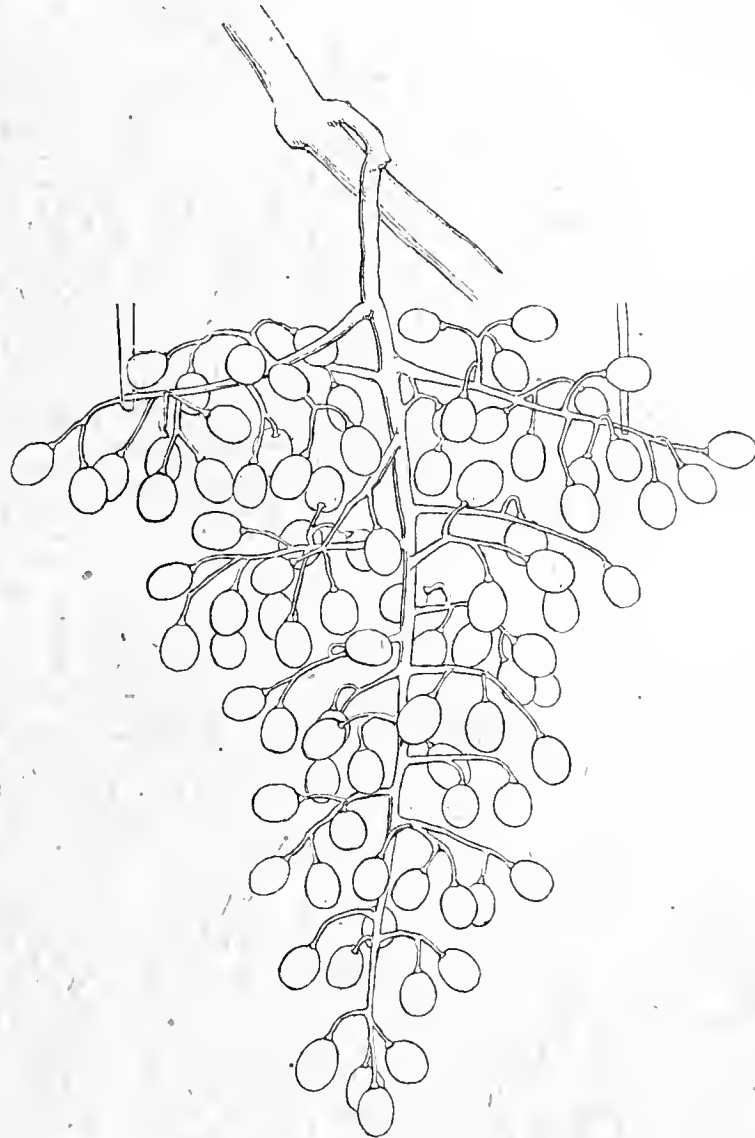


FIG. 58.—PROPERLY THINNED BUNCH.

compost of two parts loam and one of peat, with a good sprinkling of silver sand and fine bones. Apply water very carefully; syringing may be sufficient until the plants begin to grow. As soon as the roots touch the sides of the pots give another shift into 7-inch pots in the same compost as before, with the addition of a little artificial manure, such as Clay's or Thomson's. The plants must now be shaded from bright sunshine and kept well syringed, also the floors of the stove well damped. About the beginning of July the plants will be growing vigorously, and may have their final shift into 9 and 10-inch pots, using a compost of two parts good loam, one part rough peat, half a part Mushroom bed refuse, half part silver sand and rough bones, with a sprinkling of artificial manure. Well drain the pots and pot firmly. The shading must be removed in September and plenty of air admitted through the day to get the plants well coloured and hardened before being taken to the house.

Some of the Dracenas for the above treatment are—Shepardi, Youngi, Mooreana, amabilis, Lindeni, Baptisti, H. K. Freake, Gladstonei, Victoria Regina, and australis. Large plants of these stand in the house for weeks, and some of them months, without much injury. They are extremely useful for dark recesses and corridors where flowering plants would be out of the question.

I will now deal with the narrow leaved varieties. These are more graceful than the former, and are better adapted for table plants and lighter forms of decoration. The cuttings should be inserted in shallow pans in January in sand and peat dust in equal proportions, this they seem to take root in very readily. Place in the propagating box, and when the plants are large enough to handle transfer to thumb-pots, using the same compost as for cuttings, place back in the propagating box, and keep syringed; no other watering will be required. When the thumb-pots are full of roots shift the plants into 3-inch pots, adding a little fibry loam to the compost, and keeping the plants in the propagating box until they commence to grow again, when they must be removed to a shelf near the glass, in the stove, and shaded from bright sunshine.

About the middle of June they will be ready for their final shift into 5 and 6-inch pots, using a compost of one part sound fibry loam, half a part of peat, with a good sprinkling of silver sand and artificial manure. A second batch of plants should be brought on later in the season, and established in 3-inch pots, these being very useful for table decoration. They are best grown in twos or fours of each variety. The tops may be taken from some of the older plants by mossing them,

but I think the cuttings grown right on without a check make the healthiest and most symmetrical plants.

Some of the best varieties for our purpose are Lord Wolsley, elegantissima, norwoodensis, Princess May, Duchess of Portland, ensifolia, and gracilis.

Dracenas are subject to the attacks of red spider, thrips, green fly, and mealy bug. The three former, however, may be kept down by the constant use of the syringe during the growing season. Sponging seems to be the best method for destroying mealy bug, using an approved insecticide solution. After the plants have attained a large size they should be kept clean by sponging. If syringed too much water lodges in the axils of the leaves, thereby causing them to drop off. The floors and stages may be kept moist with a fine-rosed can. I keep a diary, and enter all work carried out every day. I find it very useful to refer to for information.—LEARNER AND WORKER.

"SWEET VIOLETS."

THE wild wood Violet has formed the subject for many a stanza, and carries with it an air of sweet modesty unseen in any other member of the great family of wild flowers. The other day when walking in the woodland I was attracted by a delicious odour, powerful in the fresh morning air. It must be of Violets, though the season was unusually early, and after brushing away the covering of dry Oak leaves I found them—a large clump of tiny white flowers, modest and shrinking, as if "born to blush unseen," yet how pure, how sweet, carrying in their simple forms a charm which one might look for in vain in the most gorgeous of the Orchid tribe. A little further on was a similar clump of the wild blue variety, perhaps even more common. The situation might have been chosen by the most skilful gardener, as protection was ingeniously secured, and the covering of dead leaves had made it even more complete. Tiny leaves were just unfolding, and the earliest flowers were mounted on short footstalks. They seemed to have been in a hurry to open, in order to be the first to bring a message of gladness.

Let us turn to another section of the family—"Sweet Violets; penny a bunch." Turn down whichever street you will in the metropolis at the present time and this cry breaks on your ears, and bunches of Violets are poked in your face. Thousands of city clerks appear at the office every morning with a fresh bunch in their buttonholes. Watch them dotted round the theatres, the concert rooms, and every other place of amusement, and see the well-dressed city man stop to have a bunch pinned into his coat by the flower girl at the street corner. In the early morning Covent Garden Market seems pervaded with Violets. Wholesale dealers are busy selling, and retail vendors are equally anxious to buy. Box after box are opened, and no sooner opened than they are emptied and hurried off in this direction and in that to keep the cry and supply the demand for "Sweet Violets."

The Czar is the principal variety, and though the colour is deep and flowers of good size, there is a lack of the delicious odour which characterises the native of the woodland, or even the Czars which are now blooming so profusely in the garden. This is a pity, for when the Londoner buys his bunch of Violets one would like him to have with it its fulness of scent. Not being produced under their natural conditions, and in an atmosphere more genial than ours, we get the flowers in abundance, but little of their most pleasing attribute—the scent. Then there is the close packing, the long journey, and continual knocking about, which do not tend to improve the faint odour they have to begin with, and consequently the Londoner gets his Violets almost devoid of scent. The wily flower vendor knows this, and to supply the discrepancy he sometimes "fakes" them by dipping the flowers into a liquid scent of Violet odour, and then displays them "all sweet" to his customers.

So much for the imported Czar. But in our gardens we have no such fault to find, as the borders and beds where they grow are now delicious with them. Thanks to the mild winter we have been picking them for some weeks past. The Czar does well under the protection of a wall, and grown in such a position a few blooms can generally be picked through a mild winter. Even in a northern aspect so protected the plant does well, and produces abundance of flowers. Like its relative of the woodland, it revels in a rather moist position, a soil rather strong in character being the most suitable. The plant, however, is wonderfully accommodating, and there are numerous spots in many gardens that might be utilised, aye, and beautified by the introduction of this time-honoured member of the Violet family.

Those who aim still higher, and are content with nothing less than frame-grown Marie Louise, Neapolitan, and the white Comte de Brazza, have their wants supplied abundantly, for the recent warm sunshine and genial spring-like weather have caused the plants to flower profusely. These varieties, too, find their way into the market in increasing numbers, though the sale of them is principally confined to the florists' shops. Simple though the routine is, many people stumble over the cultivation of double Violets, generally through coddling the plants, a process to which they hold strong objections. It is during the growing period of the plants during the summer that the principal care is required, and various methods of propagation are adopted. Some growers split up the old plants in the early summer, and place the portions at once in their growing quarters. A better plan, however, is to make cuttings of the young side growths (not runners) in April, and root these in a frame over a slight hotbed. When thoroughly rooted they should be planted in rows on a warm border, previously forking in a dressing of thoroughly decayed Mushroom bed refuse. The after cultivation consists of keeping the hoe continually worked between the

rows, and pinching off all the runners as they appear. If the latter are allowed to remain they draw the nutriment from the parent, which is detrimental, as the aim should be to get plants as strong as possible for transferring to the frames in October. During periods of drought applications of water or liquid manure are highly beneficial.

Whether hotbeds are beneficial for Violets is a point that has been much discussed, and one on which opinion is divided. There are certain risks of the bed being too hot at planting time, and I have frequently seen plants produce abundance of bloom for a few weeks after transferring to the frames, owing to the forcing effect of the manure, and then the leaves have damped and withered, and the plants ceased entirely to throw up flowers. Such is not a desirable state of affairs, and perhaps there is no better method of growing Violets than close to the glass in an ordinary brick frame, round which runs one row of 2 or 3-inch pipes. These need not be heated, except in severe weather, and then only to keep out the frost.

Air is one of the great essentials to successful Violet culture under glass, and on all favourable occasions a free circulation should be afforded. Damping is often prevalent during severe weather, when the frames remain closed for any length of time. The earliest opportunity should always be taken of picking over the plants, and removing all leaves affected. If this is neglected the evil spreads, and wholesale loss is the result. At this time of the year and later care should be taken that the plants do not suffer through drought, and an occasional application of lukewarm liquid manure from the farmyard will increase and prolong the production of flowers. If the frames are required in a few weeks time for the raising of vegetables and so forth, and it becomes necessary to remove the Violets, those plants not required for propagation may be packed close together under the shade of a wall, and if supplied with water will continue the bloom for several weeks longer.

The once popular Neapolitan variety appears to be almost superseded by the deeper hued Marie Louise, which is also very sweet, and the white section is monopolised by the multi-flowering Comte Brazza. Several others there are, but the palm of popularity must be given to the above. Whether wild or cultivated, the early spring is the true season of the Violet. Year by year its popularity increases, and, unlike some flowers, its presence never seems to tire us. Take the Snowdrop, the Crocus, the Daffodil, or the Primrose; we welcome the first blooms with ardent admiration, but as the weeks roll on and the flowers are common we seem to take little notice of them. Not so the Violet; its charms are irresistible.—G. H. H.

SPRING SHOW AT EDGBASTON.

THE Birmingham Spring Exhibition, usually held in the Town Hall having been abandoned, it was a happy inspiration of Mr. Robert Sydenham to have a show on his own account by offering substantial prizes in classes of pot plants and cut flowers. A brilliant display resulted on the 18th and 19th ult. It may be remarked that the Show was appreciated all the more from the fact that no Daffodil and Narcissus show is to be held here this year owing to financial reasons. In addition to the exhibits of the competitors Mr. Sydenham contributed a splendid collection of such as Tulips, Hyacinths, Daffodils, and Narcissi in pots.

A group exhibited by the Rev. J. Jacobs, Whitechurch, Salop, in the class for a collection of Daffodils, not more than five of any one variety, was very beautiful. The best were Sir Watkin, Countess of Annesley, Obvallaris, Dean Herbert, Golden Spur, maximus, Emperor, Empress, P. R. Barr, Horsfieldi, Johnstoni, Queen of Spain, cyclamineus, W. P. Milner, Nelsoni major, Burbidgei, Barri conspicuus, Nelsoni major, poeticus poetarum, Grand Monarque, Cynosure, Jaune Supreme, Robin Hood, bulbocodium, and the sweet-scented single Jonquil. Mr. I. Cooke, Shrewsbury, was awarded the second prize for a good collection.

For twelve single Hyacinths, distinct, Mr. A. Cryer, gardener to J. A. Kenrick, Esq., Edgbaston, was awarded the first prize. Mr. Priest, gardener to A. W. Hulse, Esq., was second, and Mr. J. Price, gardener to Sir John Jaffray, third. For six pots Hyacinths the first prize was worthily awarded to Mr. W. A. Sarsons, Moseley, an amateur, for excellent examples not equalled by any other in the show; second to Mr. E. C. Fowke, and third to Mr. Snead, gardener to E. M. Sharp, Esq. For twelve pots of Tulips Mr. Priest ranked first, Mr. Isaac Cooke second, and Mr. A. Cryer third. For six pots ditto Mr. Snead was to the fore, Mr. C. Knight, Harborne, second, and Mr. B. Horton the third position.

For twelve pots of single Narcissi Mr. Priest took the lead, Mr. A. Cryer the second, and Mr. Isaac Cooke the third position. For six pots of Narcissi the first prize was awarded to Mr. Snead, the second to Mr. E. C. Fowke, and the third prize fell to Mrs. H. Mitchell. For six pots of Polyanthus Narcissus, not less than four varieties, Messrs. I. Cooke, A. Cryer, and Snead were the prizewinners.

For six pots of Lilies of the Valley Mr. A. Cryer, Mr. I. Cooke and Mrs. H. Mitchell stood in their order named. For six pots of Hoteia japonica Messrs. Priest and A. Cryer were awarded the first and second prizes. For six pots of Cinerarias Mr. A. Cryer was the only exhibitor, with very good specimens, and which secured the first prize.

For a group of spring flowers in pots arranged for effect in a space not exceeding 30 square feet there were three competitors. Mr. Isaac Cooke was awarded the first prize for a tasteful arrangement, Mr. Priest the second, and Mr. A. Cryer the third prizes. A special extra prize to the most successful exhibitor in classes 1, 3, 5, 7, 8, 9, 10 was accorded to Mr. A. Cryer. A special extra prize to the most successful exhibitor in classes 2, 4, 6, 7, 8, 9, 10, fell to Mr. Snead.

A fine collection of Cyclamen, containing several superb varieties, was shown by Mr. R. Sydenham, also a beautifully bloomed specimen *Dendrobium nobile*. Mr. A. Cryer staged an excellent collection of a dozen plants of *Hippeastrums* raised from seed of his own saving. The blooms were large, and of varied rich colours. A certificate of merit was accorded them. A certificate of merit was also awarded to Mr. Isaac House of Westbury-on-Trym for a collection of fine and sweetly scented Violets, said to be of Californian origin. Mr. R. Sydenham displayed a set of his popular "Rustic Table Decorations." A rich display of Orchids, Hyacinths, Tulips, and Cyclamen in the adjoining glass structures materially add to the delectation of the visitors.



HARDY FRUIT GARDEN.

Protecting Wall Trees.—The cold biting east winds of spring, which frequently follow and sometimes accompany bright sunny weather, are in some circumstances very trying to fruit trees in blossom. The early-flowering stone fruit trees on walls, Apricots, Peaches, and Nectarines, almost invariably need some protection so as to obviate injury to the reproductive organs of the flowers when the latter are fully open. The blossoms are then most susceptible to untoward influences, such as storms of rain and wind, which beat and cut them about, saturating the delicate parts with moisture.

A severe frost then following destroys their functions, rendering the setting of fruit impossible. The object of protecting is to avoid such disasters when bad weather is prevalent by timely covering the trees while still dry, endeavouring to keep them so during the continuance of unfavourable periods. Frosts or low temperatures have but little effect when the flowers are free from moisture.

Protecting material is occasionally employed with advantage on very sunny walls to retard the opening of the blossom, thereby causing the flowering period to be later, and probably at a more favourable time. In such cases the trees are screened from the warm sunshine and fully exposed when dull and cold. As soon, however, as the flowers open protection from wet and frost must be resorted to, with plenty of sun and light afforded at other times.

Moveable Protection.—The advantages of protecting material which can be drawn off or on one side are obvious. Copings projecting 18 inches from the wall may be affixed temporarily upon which to hang blinds or curtains of tiffany, canvas, or frigi domo. The front part of coping should carry an iron rod on which rings can be placed, these being attached to the protecting material. By this means the blinds are readily drawn over the trees when necessary, and as easily drawn off. Some provision must be made at the base for securing the blinds tightly. Similar iron rods to the others fixed to uprights about a foot from the ground are suitable. The material ought not to touch the trees, so that air can circulate about them freely.

Fixed Protection.—When protecting material is not daily removed, but remains over the trees continuously during the time they need such aid, it is termed fixed, or in a sense permanent. The character, however, of the material should be such that while affording protection it ought not to exclude light and air. This cannot be properly done by close-textured materials, but it may be effected by fish netting two or three times doubled laid over the trees. Such protection can remain until all danger from frost and cold winds is past.

Grafting Fruit Trees.—It will soon be necessary to carry out grafting operations where such is proposed to be done. Trees having large thick branches which it is intended to attach grafts to should have the limbs prepared by heading them down in readiness for working when the bark in the stocks lifts freely, showing that the sap is in motion.

Crown or Rind Grafting.—Preparation of Stocks.—This is the best method for attaching grafts to large branches. Those branches headed down early need to be freshly cut over immediately before commencing grafting. When the scions are ready for insertion cut a slit through the bark of stock longitudinally the same length as the prepared part of scion. Choose a smooth portion of bark for the incision.

Preparation of Scions.—Scions must be perfectly dormant. The best portions for forming grafts are obtained from the central parts of young shoots well ripened. The scions, when prepared, should be about 6 inches in length, and have three good buds on the parts left above the inserted portion. The lower part of scion is cut slantingly, making the cut quite clean and evenly. In order to facilitate the insertion of the scion firmly on the stock remove a small portion of wood at the top of the slanting cut, thus forming a shoulder which will rest on the stock, holding the graft exactly in position.

Uniting Stocks and Scions.—Carefully lift the bark of stocks with a smooth wedge-shaped instrument. This will admit the scions. Push each scion down until the shoulder portion rests on stock. It is important that the inner bark or alburnous tissue of both stock and scion exactly meet, on one side at least, but better if on both. The inner bark is the actively dividing tissue termed the cambium, where new growth is originated by cells receiving the sap on its returning course from the

leaves. Having fixed the scions on the above principle, proceed to secure them permanently safe by tying matting securely round them. Finish by covering the grafts, also top of stock, with clay or grafting wax. This is important to exclude air, and maintain moisture for assisting the complete union of the parts.

FRUIT FORCING.

Peaches and Nectarines.—Earliest Houses.—Careful attention to ventilation is necessary in cold sharp weather, as cold currents cripple the foliage and give a check to the fruit, often causing it to fall, therefore admit a little air early, and allow the temperature to rise somewhat higher than would ordinarily be permitted rather than give air to keep it down and in doing so cause an inrush of cold air. The advance must be from sun heat, turning off the artificial heat and closing early. Stoning will soon be completed in the most forward varieties, when the final thinning must be effected, and the border may be mulched with partially decayed manure 1 to 2 inches thick, and the night temperature may be raised to 65° to 70° in mild weather, 70° to 75° by day artificially, and 80° to 85° or 90° from sun heat. This will bring the fruit rapidly forward and insure its swelling to a good size, but it will not have the colour and quality of that given more time. Tie-in the shoots as they advance, regulating them so as not to be too crowded, as this lets more light to the fruit for colouring, and the wood becomes more solidified and better ripened for another year. Outside borders will only need sufficient protection in the way of a mulch against frost and snow, and inside borders must have due supplies of water or liquid manure. When close pinching of the laterals has to be practised to keep the growths in order there is danger of starting the base buds, and extension only increases the vigour, frequently resulting in the principal buds pushing laterals instead of forming fruit buds. Such trees must be marked for lifting at the proper time, and when a shoot becomes so gross as to push the whole of the buds it is best to cut such away altogether, as they have large sap-vessels, and may fall a prey to gum, interfering with the proper training of the trees.

Vines.—Earliest Forced in Pots.—The canes started last November, that were duly attended to in regard to heat, moisture, and other cultural requirements, also furnished with supplies of liquid manure and surface dressings of rich compost, have the Grapes swelled to a good size, and these are changing colour. The supplies of liquid manure should be lessened gradually, so as not to give a check, and the atmospheric moisture must be reduced, yet do not withhold it entirely; but allow a gentle circulation of air constantly, and damp the house in the morning and afternoon, as moisture is essential to the finishing of the Grapes, and does not inimically affect early crops. Maintain the temperature at 60° to 65° at night, 70° to 75° by day artificially, and between 75° and 85° through the day from sun heat, ventilating freely in fine weather.

Early Houses.—In the house started early in December the Grapes are rapidly advancing towards the colouring stage, and should be afforded a thorough supply of tepid liquid manure, mulching with a little partially decayed rather lumpy material, such as sweetened horse droppings, or stable manure, with the strawy portion shaken out, answers well after it has been properly sweetened. With the border in a proper state of moisture and the stimulus given the roots, little, if any, further moisture will be needed by the border until the Grapes are cut; but there must not be any deficiency, as it is important that the foliage be kept healthy. Continue damping the house at closing time until the Grapes are well advanced in colouring, after which reduce the moisture gradually, but provide a circulation of warm air by day and night. This is particularly necessary with Madresfield Court and other Grapes liable to crack, and where these are grown it may be wise to dispense with the dampings, covering the border with rather rough dry material, excluding water from the house after the Grapes show colour, but with a little ventilation constantly, and this increased early in the day, the border not being too wet, this very fine early Grape does not show much disposition to cracking in the berries.

Vines Started at the New Year.—When these come into flower they will need plenty of warm, rather dry air, with a temperature of 65° to 70° at night for Black Hamburgs and similar sorts, and 70° to 75° for Muscats. All shy setting varieties must have their flowers gently rubbed with a camel's-hair brush to rid the stigmas of the glutinous substance about the time the blossom is fully expanded, choosing a warm part of the day after the house has been freely ventilated. Varieties deficient in pollen may be supplied from that affording it freely. On no account allow the thinning to remain a day longer than is necessary to ascertain the best set bunches. Free-setting varieties, such as Black Hamburgh, may be thinned as soon as the berries are formed, but Muscats and other shy setters ought not to be thinned until the properly fertilised berries are taking the lead. No rule can be laid down for thinning, as the berries vary in size in different varieties, and even of Vines of the same variety. Healthy, strong Vines swell much finer berries than those not so vigorous, but space must be left that each berry will have room to swell without being wedged or crushed, yet the berries must be close enough to preserve the form of the bunch when placed upon the dish. When the Grapes have been thinned and are fairly swelling supply liquid manure in a tepid state, and mulch with about an inch depth of rather fresh, but sweetened, lumpy manure, keeping it damp by sprinkling daily, especially at closing time. Admit air early and liberally as the heat increases, seeking to secure short-jointed wood and thick leathery foliage. Close early, with plenty of atmospheric moisture, raising the heat from the sun to 85° to 90°, and allow the night temperature to fall to between 60° and 65°.

Watering, Feeding, and Mulching.—From the time the Vines are started until the fruit ripens they must not lack moisture at the roots. It is extremely difficult to state how often the borders must be watered through these being so variable in soil and dimensions, in depth, and in their formation. A narrow border will need watering twice as often as one double the width, and a border of loose materials will require much more water and frequently than one formed of firm retentive soil, consequently the cultivator must be guided by the state of the Vines in relation to their rooting area. The proper plan is to examine the border, and when water is needed give a thorough supply. Surface dressings of the approved advertised chemical manures, and supplies of liquid manure may be given. The borders having been dressed at the time the Vines were at rest, a dressing after the Grapes are set, repeated about the completion of the stoning process, will help considerably, the material as regards inside borders being at once washed in, or a good supply at those times of liquid manure, and when the fruit commences to colour will assure the berries swelling to a good size. In the case of Vines restricted to narrow borders higher feeding will be necessary, affording liquid manure whenever there is need of moisture. Supply a mulching a couple of inches thick of rather lumpy manure, the best being stable manure freed from the straw, but it must be sweetened before introducing to the house, otherwise too much ammonia vapour may arise and injure the Vines.

Late Vines.—Syringe those that have commenced growth two or three times a day, endeavouring to secure an even break by closing with a moist atmosphere of 75°. Employ fire heat as may be necessary to secure a minimum of 55°. Vigorous young Vines do not start regularly, therefore to prevent a rush of sap to the upper part of the canes they should be brought into a horizontal position until all the buds have started.

Late houses of Black Hamburgs may be allowed to start naturally next month, they advancing sufficiently by sun heat and a little artificial warmth on cold nights to set and have the Grapes thinned by early June, and the fruit mainly forwarded by sun heat ripen in late September, which suits them very well, for if ripened earlier they are liable to lose colour and quality by hanging, which is common to all black Grapes with thin skins; even Madresfield Court becomes quite red by November, yet none loses colour so badly as Hamburgs.

Young Vines.—Canes planted last year as such and cut back to the bottom of the rafter or trellis at the winter pruning must be encouraged by gentle fire heat, so as to allow time for their making and perfecting a good growth. The laterals must have their points pinched out at the first leaf up to a height of 6 feet of the current growths on the canes, which will cause the buds in the axils of the principal leaves of the canes to form fruit buds and become plump for next season's fruiting, but above that height may be allowed to grow more, so as to strengthen the rod.

THE BEE-KEEPER.

FLOWERS FOR BEES.

THE weather has been wet and boisterous for some time past. The temperature, too, has been lower than is usual at this season. Still flowers may be observed in all directions in country districts, not only on the sunny banks by the roadside, but in the sheltered woodlands. On the former the most prominent at present are the yellow Buttercup, Primroses, and the wild Violet. The latter will soon be carpeted with the Wood Anemone; already in the more sheltered spots the blooms are almost expanded.

The bees work more or less on all the above—in fact, at this early season they may be observed to be hard at work collecting from flowers which they ignore later in the season when flowers are more plentiful. Take the Violet for instance. Although they are somewhat plentiful in the majority of gardens in the country and bloom freely in the autumn, it is an unusual thing to see bees at work on the flowers. At the present moment during a spell of bright sunshine the bees are busy amongst the expanded blooms of a bed of Victoria Regina Violet within a few yards of where I am writing.

One of the best pollen-producing trees is the common Palm Willow, which grows freely in any situation, but, like all the Salix tribe, prefers plenty of moisture. They are not only ornamental at a season when the majority of deciduous trees are bare (not having yet put on their summer garb), but useful, owing to the great amount of pollen they produce. It is, however, many years since bees have been confined to their hives so much as they have throughout the past winter, as up to the present there have been but few days in which the bees were able to venture far from home, so have derived but little benefit from the flowers.

GARDEN FLOWERS.

Under this heading may be included some of the flowers mentioned above, for are not Primroses and Violets cultivated in the majority of gardens? and what a showy early flowering variety

is Harbinger Primrose, distributed by our old friend, the late Mr. R. Gilbert, of Burghley? A few square yards of a border planted with this variety near my bees have been a sheet of bloom for several weeks past, and should be grown by all, irrespective of bee-keepers, for its beauty. It has also the advantage of being perfectly hardy.

The Winter Aconite and Snowdrops are now over, but owing to reasons given above they have been of less benefit than usual to the bees. The Crocuses are nearly past; there has been plenty of bloom. The bees, however, worked but little on them. Scilla sibirica is fast opening its flowers, which will last for some time to come. How handsome masses of this bulb look when in flower if planted under trees in the grass. In fact, the majority of bulbs will grow and produce seed freely if planted on the grass and allowed to remain without being disturbed for several years. The common single Daffodil will soon be in full bloom. This is one of the most showy and inexpensive bulbs grown, and when once planted on the grass may be allowed to remain. Bees work freely on it; but it does not produce pollen so freely as some of the others mentioned.

Tulips treated in the same manner are growing well, but the more forward varieties will not be in bloom for several weeks yet. Many other bulbs might be mentioned; useful as well as ornamental, but the above are amongst the most common.

FERTILISATION OF FRUIT TREES.

The buds of many of the fruit trees are now very prominent, the excessive rainfall experienced causing them to swell and expand earlier than might have been expected. Some of the more forward of the Apricots on south walls are a mass of bloom, and being within easy reach of the apiary the bees will fertilise the flowers, and in doing so will obtain sufficient pollen for their daily requirements. The fertilisation of fruit trees must not be ignored by bee-keepers, and the benefits derived from bees should be constantly kept in mind. I believe it would be of great advantage to all hardy fruit growers if they kept bees in proportion to the extent of their fruit farms.

If no account were taken of the honey they would obtain, in fact make that a secondary consideration, the fruit grower would still be a great gainer by having better crops of fruit, and as is well known, if the bloom is properly fertilised there is a much better chance of the fruit coming to maturity than if the reverse is the case.—AN ENGLISH BEE KEEPER.

TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed to members of the staff after remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Kangaroo Vine (W. W.).—This is the popular name of your window plant, botanically *Vitis antarctica*. It is of easy culture, but some of the leaves are prone to fall after a winter's sojourn in a room. If the roots are healthy the plant will improve now. Stand it outdoors now and then during a warm shower, cleanliness of the foliage being highly conducive to health.

Green Fly on Gooseberry Bushes (Ama'eur).—The bushes may be dusted whilst dormant and damp with mist, or after rain, with quicklime. This has a good effect on the eggs, cleanses the trees of lichen and moss, and does good to the soil. Upon the first appearance of the aphides the bushes may be syringed with quassia water, 1 lb. of chips to 3 gallons of water; let it stand twenty-four hours, and strain before use. Another plan is to use the following:—4 ozs. of quassia chips boiled a quarter of an hour in a gallon of water, adding 2 ozs. of soft-soap whilst hot, dissolving it thoroughly, and straining. Both the

preceding are best applied with a spraying nozzle, directing the spray upward, so as to reach the under side of the leaves. A cheaper yet efficacious plan is to syringe the bushes with clear lime water, made by placing 1 lb. of quicklime in a tub with 3 gallons of water, stirring well together, letting stand twenty-four hours, then pour off the clear water, leaving the sediment. Later in the season it is also a good plan to cut off the infested points of the shoots and burn them, thus clearing the bushes of many aphides.

Cœlogyne Unhealthy (G. H.).—The discoloration does not extend beyond the surface, and we should not anticipate any evil results if the plants were healthy; but that does not seem to be the case, as the pseudo-bulb is puny, the leaves small and not well developed. Perhaps the plants require repotting, and if you do this give them fresh good peat with plenty of drainage. If you can induce a more vigorous growth they will flower satisfactorily, but when in a semi-starved condition you cannot expect them to succeed.

Scale on Oleanders (W. V. B.).—Neriums are subject to this species of scale insect, and then follows black fungus. The insect is known to gardeners as the orange scale. To free the leaves of it they should be washed with a solution of softsoap at the rate of 6 ozs. to the gallon of water. The plant first of all should be syringed with water at a temperature of 140°, which is not too high if syringed on the plant; but if the latter be immersed the water must be at 120°, and the plant may be kept in the water half a minute. The leaves are to be washed on both sides with a sponge, pressing whilst washing them, so as to dislodge the insect and remove the black fungus. After the leaves have been washed on both sides they should be allowed to dry, and then the plants should be syringed with water at 140°, laying the pots on their sides so that the hot water may not wet the soil. The insects near the midribs may be dislodged by employing a pointed stick. A good washing with softsoap will generally keep the insects under, but repeated washings are necessary to keep plants subject to it clean.

Compost for Cypripediums and Dendrobium (Young Grower).—A suitable compost for Cypripediums insigne and barbatum would consist of equal parts good fibrous peat, fresh sphagnum, and loam fibre, with a liberal admixture of potsherds or charcoal. The drainage must be exceptionally good, as these plants require abundant supplies of water at the roots while growing, and even in the winter must not be dried off in the way pseudo-bulbous plants generally are. In potting be careful to cut away all decayed roots, and spread out those that are healthy, so that the compost runs evenly amongst them. Cypripediums should not be raised above the rims of the pots, but kept slightly below, as in potting ordinary plants. Dendrobium nobile thrives best in peat and sphagnum in about equal proportions, with a few nodules of charcoal added to insure aeration. Fill the pots two-thirds of their depth with crocks, over these put a thin layer of rough moss, then press the compost firmly about the roots, keeping the base of the bulbs an inch or so above the rim of the pot, finishing so that they just rest on the top of the compost.

The Lackey Moth (A. B. C.).—The following methods of prevention and remedies are recommended by Miss Ormerod:—"Some good may be done by looking for the rings of eggs on the shoots, cutting these off and destroying them; also by destroying any yellow silken cocoons that may be found about the trees; but these methods are tedious, and, though they are of use where just a few trees can be carefully tended, are of little service in orchard treatment. A far better way is to watch for the webs, and, as soon as they are seen, to carry out the old French method and cut the shoots through with a pair of nippers and destroy them. It is well for one person to cut and another to hold a pail below for the web and all the caterpillars (which on the first alarm would throw themselves down by their threads) to fall into. The pail should have a few inches depth of water in it, or mud thick enough to prevent the caterpillars from escaping. A less troublesome, but less complete method, is to shake the boughs, or strike them smartly, so as to make the caterpillars drop, and sweep those that dangle by their threads in the air down with the hand. These may be trampled on, or gas-lime, quicklime, or anything that will kill them may be thrown on them, but it should be done at once. As the moths harbour under leaves and long grass, a properly kept state of undergrowth in orchards, free from overwhelming weeds and rank herbage, is of service in preventing attack. Much more attention to this matter is needed relatively to keeping down Apple pests than is commonly supposed. The dark, damp, confined air of the neglected overcrowded orchard fosters all kinds of insect pests, and as no grass cut in such circumstances would dry it is often left for rough feeding, or an occasional "skirming" of what is too long to remain uncut, and thus "pests" have possession; whilst where the trees stand apart, as they should, there is sunshine and fresh air to cause ripened growth, and lighten up the dark nooks that insects hide in. The grass can be properly pastured and attended to, and also the small birds have fuller access to do their work as insect-clearers."

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, at being often difficult to separate them when the paper is damp. (J.)—*Spiræa astilboides*. (W. H.).—*Forsythia viridissima*. (W. W. C.).—*Narcissus minor*.

COVENT GARDEN MARKET.—MARCH 24TH.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	1	3 to 2	6	Lemons, case	11 0 to 14 0
Filberts and Oobs, per 100 lb.	0	0	0	Plums, $\frac{1}{2}$ sieve	0 0 0 0
Grapes, per lb.	2	0	3 0	St. Michael Pines, each ..	3 0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100	0	0 to 0	0	Mustard and Oress, punnet	0 2 to 0 4
Beans, $\frac{1}{2}$ sieve	0	0	0 0	Onions, bushel	3 6 4 0
Beet, Red, dozen	1	0	0 0	Parsley, dozen bunches ..	2 0 2 0
Carrots, bunch	0	3	0 4	Parsnips, dozen	1 0 0 0
Cauliflowers, dozen	2	0	3 0	Potatoes, per cwt.	2 0 4 9
Celery, bundle	1	0	0 0	Salsafy, bundle	1 0 1 0
Coleworts, dozen bunches	2	0	4 0	Seakale, per basket	1 6 1 0
Cucumbers	0	4	0 8	Scorzonera, bundle	1 6 0 0
Endive, dozen	1	3	1 6	Shallots, per lb	0 3 0 0
Herbs, bunch	0	3	0 0	Spinach, pad	0 0 4 0
Leeks, bunch	0	2	0 0	Sprouts, half sieve	1 6 1 0
Lettuce, dozen	1	3	0 0	Tomatoes, per lb.	0 4 0 9
Mushrooms, per lb.	0	6	0 8	Turnips, bunch	0 3 0 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (various) doz.	6	0 to 36	0	Ficus elastica, each	1 0 to 7 0
Aspidistra, dozen	18	0	36 0	Foliage plants, var. each	1 0 5 0
Aspidistra, specimen plant	5	0	10 6	Genista, per dozen	6 0 10 0
Azalea, per dozen	18	0	36 0	Hyacinths, large, per dozen	6 0 12 0
Cinerarias, per dozen ..	6	0	9 0	Lily of the Valley, 12 pots	9 0 12 0
Cyclamen, per dozen ..	9	0	18 0	" " in boxes	4 0 6 0
Daffodils, per dozen ..	6	0	8 0	Lycopodiums, dozen	3 0 6 0
Dracena, various, dozen ..	12	0	30 0	Marguerite Daisy, dozen ..	9 0 12 0
Dracena viridis, dozen ..	9	0	18 0	Mignonette, per dozen ..	6 0 8 0
Erica, per dozen	9	0	12 0	Myrtles, dozen	6 0 9 0
" hyemalis, per dozen	10	0	15 0	Palms, in var. each	1 0 15 0
Euonymus, var., dozen ..	6	0	18 0	" (specimens)	21 0 63 0
Evergreens, in variety, doz.	4	0	18 0	Spiræa, per dozen	6 0 9 0
Ferns in variety, dozen ..	4	0	13 0	Tulips, dozen pots	6 0 9 0
Ferns (small) per hundred	5	0	8 0	" in boxes, per dozen	0 8 1 6

Roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety

	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches..	1	6 to 3	0	Mignonette, dozen bunches	3 0 to 6 0
Arum Lilies, 12 blooms ..	2	0	4 0	Narciss, White, dozen	
Asparagus Fern, per bunch	2	0	3 6	bunches	1 3 2 0
Azalea, per dozen sprays ..	0	6	0 9	Narciss, Yellow, dozen	
Bouvardias, bunch	0	6	0 9	bunches	1 0 2 0
Carnations, 12 blooms ..	1	6	3 0	Orchids, var. doz. blooms	1 6 12 0
Daffodils, double, dozen				Pelargoniums, 12 bunches	6 0 9 0
bunches	1	6	4 0	Polyanthus, dozen bunches	1 0 2 0
Daffodils, single, dozen				Pyrethrum, dozen bunches	1 6 3 0
bunches	2	0	5 0	Roses (indoor), dozen ..	1 0 1 6
Eucharis, dozen	3	6	4 0	" Tea, white, dozen ..	1 0 2 6
Gardenias, dozen	4	0	6 0	" Yellow, dozen (Nels)	3 0 4 0
Geranium, scarlet, doz.				" Red, dozen blooms ..	4 0 6 0
bunches	4	0	6 0	" Safrano (English),	
Lilac, White (French), per				dozen	1 0 2 0
bunch	3	0	4 0	" Pink, per dozen	4 0 8 0
Lilium longiflorum, 12				Smilax, per bunch	4 0 6 0
blooms	2	0	4 0	Tuberoses, 12 blooms ..	1 0 1 6
Lily of the Valley, 12 sprays,				Tulips, dozen blooms ..	0 6 1 0
per bunch	0	6	1 0	Violet Parme, per bunch ..	2 0 2 6
Maidenhair Fern, per dozen				" per doz. bunches ..	1 0 1 6
bunches	6	0	8 0	" (French), per dozen	
Marguerites, 12 bunches ..	2	0	3 0	bunches	0 6 1 0
Mimosa (French) per				Wallflowers, dozen bunches	1 6 4 0
bunch	1	0	1 6		



WIREWORM.

WE have had it in mind to write of this pest for some time, but somehow other subjects came to the fore, and the wireworm was left in its native obscurity. However, to-day in reading the "Agricultural Gazette" we find their ravages are referred to, and a remedy—an old remedy in a new form—suggested.

What, in the first instance, is a wireworm. The wireworm is the larva of a small beetle known as "skip jack," "snap," or "click beetle," from their habit of flying up in the air with a kind of snap or click. They pass through three stages of growth—larva, pupa, and complete insect; but there is with them one strong point of difference with regard to other sorts, in that they continue in the grub or wireworm state for many years. The pupal stage appears only to last about a fortnight or so.

The "click" beetles are about a quarter to half inch in length, with a pair of long horns and six legs. The wireworms are of a straw colour. They, too, have six legs, and by these six legs can

be easily distinguished from other worms, which are all furnished with many more of such appendages.

Miss Ormerod, who has been a close personal observer of the habits of insects, has little doubt but that the eggs are laid either just below the ground near the food plants, or among the leafage on the ground level. Wireworm is most injuriously active on light soils, chalk, gravelly soil, fen land, and the like. It is a matter of vital importance to the wireworm that it should be able easily to get through the soil in search of fresh food, so that we find as a general rule that strong clay lands are exempt from this pest.

We have been looking over some old statistics of damage done by wireworm, and we will just note a few instances for the sake of the unbelieving. On one farm of 1000 acres the occupier notes that in an average of seasons the loss on his corn crop would amount to £700. This is Hampshire; and he further adds that the losses on most Hampshire and Wiltshire farms is equal to the rent! This is owing in a great measure to Sainfoin being a leading crop, and Sainfoin is the home and nursery of the wireworm.

Another man from Derbyshire says 5 bushels an acre is what he estimates as his loss from this cause. From Canterbury: "The average amount of injury is about one-tenth of the crop." Dalkeith: The wireworms have not left half a crop. These crops mentioned are corn crops. It attacks the young Turnip, Swede, and Potato plants, exterminating, or nearly so, the two former, and making of the latter a grubby sample. To the Hop grower it is an enemy to be fought against, and only exterminated by great cost. The wireworm is always to be found after such crops as Clover and old Grass. These crops are usually allowed to stand several years, then when broken up and sown, whatever the crop may be, the farmer is sure at least of one thing, and that is the presence of the wireworm in great numbers. "Dirty" land, too, encourages the growth of the pest—the cover is there, and advantage is taken of it.

Grass or Clover which is to be broken up for a crop should be fed down as closely as possible; then, say many experts, dress well with lime or salt, or both. Nothing consolidates land like the treading by sheep, and they are also close feeders. After ploughing, the land should be well rolled with what is called a Cambridge or ring roller. Where the turf has previously been pared and burned the danger of wireworm is reduced to a minimum, but this process is one that entails more expense than the ordinary farmer can stand.

Four, and even 6 tons of lime per acre are recommended, and even in one case 15 tons of gas lime per acre, but this seems to us very much in excess. No corn crop could stand this, and it is doubtful how the Turnips would like it the following summer. In a case where the farmer suspects the presence of wireworm to any extent (that is in old Clover ley or old grass), the safest crop to take, and a profitable one, is a Potato crop, especially a strong-growing variety. The plant is so vigorous that it gets clean away from any harm, then a crop of Wheat may be sown with confidence, and a good return expected.

In all and every case he must insist on generous cultivation. A strong healthy plant well forced on by suitable manures soon gets beyond fear of damage, while a poorly nourished plant must of necessity succumb. Firm ground and a healthy flourishing plant will bid defiance to the wireworm. Farmyard manure, by opening and lightening the land, will seriously encourage wireworm. Artificial manures are free from this defect.

It is also advocated that a crop of White Mustard grown and then ploughed in is a certain remedy; at any rate, it makes a capital manure. As a crop, too, Flax is safe from injury, and is being grown with success in some parts of the kingdom. It is an old remedy to sow Rape cake dust with the grain; the worm prefers the cake, and thus allows the young plant to get well ahead. Miss Ormerod has been trying some experiments, feeding worms with two different kinds of cake—viz., Indian Rape cake and Black Sea Rape cake. The Indian cake is made from

Mustard seed. Worms fed entirely on this cake died at the fortnight's end. She found those fed on Black Sea cake, or true Rape, were alive at the end of three weeks. She exposes a common fallacy that the worms burst from over-feeding. She found no one instance of this.

Now for this week's writer to the "Agricultural Gazette." He says, "Remembering the old custom of ploughing in a crop of Mustard as a protection for Wheat, I have had all my garden crops dressed with Mustard dross, a cheap form of Mustard refuse. This dross kills the wireworm in a few minutes." He goes on to add that this dross is pressed into cakes and exported to Belgium, to be ploughed into the ground where wireworm abounds. The cost is about 2s. to 4s. per cwt. He adds, that when farming in Northampton and Hereford 400 acres of land his annual loss from wireworm averaged £50 per annum.

This statement about the effect of true Mustard seems to fully bear out the facts in Miss Ormerod's experiments.

WORK ON THE HOME FARM.

We have again to chronicle a week of disappointment. No sooner have a couple of fine breezy days dried the land surface and the horses are yoked in the drill than down comes the rain again, and we are just where we were before. As we write it is too wet to cart muck, and as for the drag or the plough, they are much better in the shed than on the land in its present state. We have to-day met one of the largest arable land farmers in Lincolnshire; he says he has quite given up sowing for the present, and shall wait for drier conditions, even if he has to drill his corn late. Meanwhile he has been ploughing Wheat up, and says that much in his district is too thin to give any real prospect of an average crop. He attributes the loss of plant to the seed having been too bold, and having burst in the soddened soil; in his own words, "No more fat seed Wheat for me."

We hear many complaints of loss of plant from wireworm. Unfortunately rolling, the best remedy, has been hardly possible lately.

Lambing has proceeded more rapidly, and the yard at night is presenting a thinned appearance. Lambs are plentiful, but there is loss amongst the ewes; several cases of liver fluke have been noted, and these on farms not usually liable to this disease. We suppose the disease has been encouraged by the abnormally wet autumn.

The wet has been bad for the young lambs, still they are better out than in the pens. It is bad for the ewe to keep her stewed up in a close place. Care should always be taken that the ewes should not have access to water, as if a sheep is in the least feverish, and gets as much water as she cares to drink, she will almost certainly die.

It is time the cattle were getting a little hardening by being turned out for a few hours every day. If the pastures are handy to the yards they would be better out altogether during the day, and most farmers will be glad to have them out, bedding is so scarce. With shelter to fly to in a storm and careful shepherding there is little gained by keeping cattle up after the equinox; there may not be much grass to look at, but it will grow, and what there is will be young and sweet.

It is almost time to drill Thousand-headed Kale. We intend putting a small acreage in early in April for autumn feed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1897. March.		Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday	.. 14	29.4 3	40.7	39.9	S.E.	40.7	44.9	37.1	51.3	31.2	0.317
Monday	.. 15	29.338	44.4	42.2	S.	40.2	43.7	39.1	73.4	32.0	0.124
Tuesday	.. 16	29.451	44.9	43.7	S.	40.4	53.6	38.6	84.9	30.2	0.168
Wednesday	17	29.521	48.4	46.3	S.W.	41.6	53.3	41.9	70.9	34.1	0.362
Thursday	.. 18	29.517	43.1	42.1	S.W.	42.3	54.3	42.5	95.1	37.7	0.117
Friday	.. 19	29.814	51.9	45.7	W.	43.8	57.1	42.2	95.6	36.4	—
Saturday	.. 20	30.141	49.8	44.9	N.W.	43.6	57.8	42.2	98.0	34.9	—
		29.606	46.2	43.5		41.9	52.8	40.5	81.3	33.8	0.986

REMARKS.

- 14th.—Spots of rain early, wet from 10.30 A.M. to noon and 9 to 10.30 P.M.; fair between, and a gleam of sun at noon.
 15th.—Sunny early and between 8 and 4 P.M., otherwise overcast, with rain from 11.30 A.M. to 2.30 P.M. and at 6.30 P.M.
 16th.—Overcast, with frequent rain in morning and evening; generally sunny in afternoon.
 17th.—Occasional sun in morning; frequent rain in afternoon, and heavy rain at 10 P.M.
 18th.—Very rough and wet till 10.30 A.M., much bright sunshine from 11 A.M., and bright night.
 19th.—Brilliant from sunrise to noon, frequently cloudy, with high wind after.
 20th.—Bright and sunny till 11 A.M., cloudy after.
 A wet and rather warm week.—G. J. SYMONS.



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Journal of Horticulture.

THURSDAY, APRIL 1, 1897.

DIGGING AND FORKING.

GARDENING presents an ample variety of subjects for the studious worker, and even the apparently simplest operations contain in their principles and the method of application abundant material for observation and reflection. The following remarks are not, however, intended for the "old hands," but for the "youngsters" who are eager to learn, and who, I know from long experience, look to the Journal for the practical instruction that is so much appreciated in the novitiate stage.

Important as it is in all its bearings, digging is a part of a gardener's work which should be thoroughly mastered as early as possible. It may be that there are a few "kid glove" young gentlemen in gardens who would almost think themselves disgraced if called upon to handle a spade; but happily they are rarities, and every young man blessed with "a sound mind in a healthy body" should regard "digging" as an essential portion of his education, the acquirement of which may be accompanied by back-aches and arm-aches, but which is nevertheless excellent training for the muscles.

There is an old adage to the effect that "A bad workman quarrels with his tools," but it is equally true that a good workman cannot do his best with bad tools; a preliminary word or two may, therefore, be devoted to spades and forks in connection with our subject. It is my opinion, founded on long experience and close observation of workmen, besides having had to perform no mean share myself, that spades are commonly made too heavy and too large. The object in all manual labour should be to secure a maximum of efficient work with a minimum expenditure of strength, and anyone who has watched a man struggling with a heavy spade must be conscious that neither of these conditions is being fulfilled.

Spades furnished with ponderous blades, 8½ inches in diameter by 12½ inches in length, which are the dimensions of a No. 3 size of some makers occasionally seen in gardens, are more adapted for a pre-historic giant than the ordinary run of young gardeners, muscular though most of them are, happily. In very light soils it is possible to use such spades to some purpose,

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but in those of a more substantial nature they are worse than useless.

An instrument with a hard steel blade, that has been worn down to about 9 inches in length, is much better suited for ordinary surface digging, and even for trenching or double digging two spits or 18 inches is sufficient depth for the majority of garden crops. Men naturally prefer a spade that is used with the least labour, and the affection they display for their old worn instruments is remarkable; but though this may be chiefly prompted by a regard for themselves, yet I am certain that they usually do more work, and in a better manner, than if they are burdened with larger tools. For ordinary use in moderately heavy soils, a blade $7\frac{1}{2}$ inches by 10 inches is quite large enough.

The size of a fork is of less consequence than strength, for this is one amongst the garden tools that should be made of the best quality material, particularly where there is much rough heavy work to be done. Either four or five-tined forks can be used, and in light soils the instrument known as a Potato fork—*i.e.*, with flat tines—is extremely useful where soil-stirring only is required, and the cultivation has been good for some time.

The method of using the spade requires attention, for there are several labour-wasting ways which seem to be learnt naturally if not corrected. Some men hold the spade with the handle in the right hand, lifting and turning with the left, while others reverse the process, the right hand doing the lifting. In my experience I have found that the majority adopt the former method, and though there is little difference in the quality of the work performed by good workmen in either way, yet I believe that if two men are evenly matched in strength the one who uses his right hand for lifting can do the greatest amount of work, unless he be a left-handed man. The hand and arm engaged in lifting the soil has considerably the greater strain to bear, and it seems unreasonable to tax more severely what is usually the weaker arm.

A few men can work both ways equally well, which is useful when two are together, or an awkward piece of ground has to be finished. The right or left foot is used to force the blade into the soil according to the way the man is digging, but even in this simple matter I have found young men at a loss. If the spade is held at a slight angle one firm pressure with the foot should force it into the soil to the top of the blade, but too often several little jerky pressures are given, that an old instructor of mine used to call "dancing" on the spade, which is a waste both of labour and time.

Except for rough digging in autumn or early winter, when frosts are expected to do the breaking down, it is not desirable to take a great thickness of soil for each spit. Some, with the object of getting over the work as quickly as possible, will take as much soil as the spade will hold every time, and the result is in heavy soil that the clods are rarely reduced properly, and they harden into dry unworkable lumps. A moderate thickness of soil turned completely over and broken down gives far better results in exposing more surface to the air and improving the tilth. This is one point I have found it necessary to frequently impress upon young workmen—namely, that there is a great difference in the methods needed for soil that is to be exposed for some months before it is occupied with crops, and that which is required for immediate use. In the one case the weather performs a greater part of the work, and more efficiently; in the other it must be done as well as possible to secure what is desired—namely, the utilisation of the plant-sustaining properties locked up in every clod of earth.

The necessity of keeping spades clean and bright should be enforced in every garden. One of my rules that I insist upon being rigorously enforced is that all tools shall be properly cleaned at the conclusion of each day's work, and before they are hung up in the tool house. When once a spade or fork becomes rusty it detracts considerably from the ease of working until it has been brightened by use.

Most of the remarks in reference to digging are equally

applicable to forking; but in a general way it may be taken as a subsidiary operation, either preparatory to digging later on or to follow that done roughly in the autumn. It is usually a less thorough means of ameliorating the soil, but is useful where simple breaking down or stirring is of more need than turning, though in fairly holding soils the latter may be accomplished with the fork provided the conditions be suitable.

The objects of such an important operation as digging should be thoroughly understood, for it is a knowledge which guides the hand. It is astonishing what an immense amount of plant food a fairly fertile soil contains, and a large proportion of this can be prepared for utilisation by plants by working the soil in digging and other operations. Some years back Dr. Voelcker examined the soil on good farm land in Hertfordshire, and the result of his analysis, we learn on the authority of Mr. T. Francis Rivers, showed that in the first 6 inches depth there were the following quantities per acre of important elements or compounds. Phosphoric acid, $2\frac{1}{2}$ tons; potash, $5\frac{1}{2}$ tons; lime, 37 tons; magnesia, $4\frac{1}{2}$ tons; sulphuric acid, $2\frac{1}{2}$ tons; nitric acid, 22 lbs.; and nitrogen, 1 ton.

Moderately heavy soil, such as is suitable for fruit trees, taken to the depth named—*i.e.*, 6 inches from the surface, would average about 1000 tons per acre, or 50 lbs. to 55 lbs. per square foot. So that the proportions named may be regarded as approximately those in 1000 parts by weight of the soil referred to—*i.e.*, phosphoric acid 2.5 per 1000, potash 5.5 per 1000, and so on. This is the most striking illustration known to me of the wealth locked up in a good soil, and serves to show what it is the object of digging to aid.

The more soil is stirred and exposed to the air the quicker are the chemical changes which reduce insoluble substances to a condition in which they become available as plant food. Further, by permitting the air to enter freely the soil is rendered dryer, and therefore warmer, besides being more readily permeable by the roots. With judicious use of the spade, the fork, and the hoe a man can in some soils be partly independent of manure, or what is equally to the purpose, he can turn to the best possible use whatever is applied.—PRACTITIONER.

CUCUMBER AND TOMATO TROUBLES.

(Concluded from page 175.)

AMONG other advice given by scientists we are told that directly a plant is affected by the black stripe it ought to be pulled up, and the soil it was rooting in either wholly changed or disinfected with lime, phenyle, and the like prior to putting out another plant. That is what we do when the affected plants happen to be quite small, but if the disease is not noticed till after the plants are 2 feet and upwards in height they would have to be in a very bad plight indeed before I should advise rooting them out. Instances have come under my observation where, if all the affected plants had been removed, few or none would have been left standing.

Market growers cannot afford to miss the best part of a season in that way. What they ought always to do is to raise a few score more plants than they think of planting in the first instance. These will be found handy for filling up blanks that may occur from any cause, also, if my advice is taken, they will shift a considerable number of plants into 11 inch or larger pots. These may be stood among the rest till the plants become tall enough to shade and injure each other, when they may be turned to good account either for taking the place of comparatively strong plants that have become badly diseased, or they may be arranged along the walks at the ends of the houses or other positions that can be found for them. The plants must be slightly sunk in the soil, well supplied with water and liquid manure. Thus treated they will do well, as the roots are certain to spread out of the drainage into the border.

Nothing I have tried by way of a dressing applied to the foliage and stems has done anything towards checking the spread of the black stripe; but by attending well to the roots, not omitting a dose of phenyle, and maintaining a warm dry atmosphere, the bulk of the diseased plants have "grown out of it," the later supplies of fruit being heavy and free from disease marks. A friend of mine with whom I have compared notes has had a very similar experience. Most of his affected plants "grew out of it" last season.

The foregoing was penned in response to an "Anxious Inquirer," who wished me to specially advise upon the treatment of diseased plants.

The "yellow spot," or *cladosporium*, though not so troublesome as it was six or more years ago, has still to be reckoned with by both market and private growers. It would really appear that private gardeners have more cause for complaint than market growers, this being due to the fact that they are not always in a position to give Tomatoes special treatment. When Tomato plants have to be grown in vineries, Peach houses, and forcing pits generally, they cannot always be treated to a warm, dry, airy atmosphere. They get the heat, but it is accompanied by too much moisture, and that is just what favours the spread of the mildew-like *cladosporium*. Before this disease was introduced from America (that is where I say it came from, with Tomato seed) I could grow Tomatoes with Cucumbers and Melons; but it cannot be done now—at least, not by me. Luckily, this highly contagious disease seems to be "wearing itself out," or may I say that an improvement in our methods of culture of market growers' plants is responsible for the comparative immunity from it? It is now generally known that an excess of moisture in the atmosphere leads to the appearance and favours the spread of this once much-dreaded disease; but if by affording fire heat and ventilating freely we can bring it to a standstill, who will be foolish enough to begrudge the cost of the fuel or neglect this timely attention? Market growers are particularly warned against any false economy in the matter of fuel for these and other reasons which will presently transpire.

A few hours' stagnation in the atmosphere sends the disease rapidly through a crowded house of plants, and there are days when this cannot be prevented without the aid of fire heat. Some of the disease will find its way to the plants in spite of all preventive measures—at least, such is my experience—and the question is, What is the best that can be done towards eradicating it? Spraying with the Bordeaux mixture was to have been as effective against *cladosporium* as it has proved against the Potato disease; but one trial of that remedy was quite enough for me. All things considered, it did more harm than good. Such a mess it made, too, of the fruit and everything else it lodged on. Next I tried what could be done with sulphate of copper and lime in a powdered form, and by means of bellows distributors coated the foliage and fruit of hundreds of plants with this pungent mixture. My men were not sorry to hear that none of the sulphate of copper and lime mixture was to be applied last season, and the boys missed the tedious occupation of wiping the ripe fruit before it was packed. I believe it checked the disease, and so it did the growth of the plants, and if it is ever used again it will be as a last resource.

Sulphuring the hot-water pipes and turning on the heat so as to generate fumes strong enough to make the eyes tingle is more to the purpose, and so is making the pipes hot on a warm day. A dry heat of 100° or rather more, accompanied by a little top air, actually kills the fungus, and that is our principal remedy. It is applied as often as the disease threatens to spread again. The plants must not be kept dry at the roots in order that the atmosphere may also be constantly dry; if a mulching of strawy manure is applied there will not be much moisture arising from the soil, the straw drying quickly and preventing evaporation.

Scarred fruits have been much in evidence of late years. As a rule the scars are only skin deep, and may be easily removed by those who eat the fruit; but all the same it sells badly. Once more the microscope brings to light a disease, but I forget whether or not it has a distinctive name. Anyway, if a name has been found a good remedy has not been given. The Bordeaux mixture and the sulphate of copper and lime in a powdered state have been suggested as a matter of course, but these are doubtful remedies—they are next to worthless in fact. Whether right or wrong in the conclusions I have arrived at, I have yet the satisfaction of knowing that the preventive measures we adopted "worked well." I noticed particularly that large quantities of fruit showed the scar, and worse still, that many more showed signs of decaying at the point after a short spell of extra bright weather. When basket after basket of fruit with decaying centres have to be gathered, mixed with lime, and buried, it sets us thinking.

Clear cold nights frequently follow the hottest days, and unless fire heat is given the fruits become very cold. Try them against the cheek at six o'clock in the morning. Directly the sun strikes on the houses the temperature rises rapidly, moisture condensing on the cold fruit only to be rapidly evaporated directly the ventilators are set wide open. What follows? The fruit, tough in the skin, scars, while much of that less advanced scalds, a soft shrunken patch being the first indication of this, and if there is any disease this is an effect not the cause of those black patches of decay that follow. It is simply a repetition of what sometimes occurs with Grape berries.

Instead, therefore, of discontinuing the fires during hot weather I gave orders to start them at 4 P.M., and to keep the pipes moderately warm all through the night. A "notch" of top air has always been left on during the summer; but this is not enough, and I had them opened wider not later than 6 A.M., an hour earlier if possible, thereby preventing any condensation of moisture, and obviating the equally injurious rushes of cold air. The result of this simple change of treatment more than equalled my expectations. The remedy was found.

Mr. Abbey may explain this away how he may, but he will have his work cut out to convince me that a new disease or a disease of any kind has been responsible for those losses of tons of fruit in various parts of the country. It is to be hoped that the several growers who sent boxes of decayed fruit to me last season will read, mark, learn, and inwardly digest what I have just advanced on this portion of my subject. It should also be added that those who ventilate early and gradually will find that there will be far less difficulty in keeping down the temperatures during the hottest part of the day than is the case when ventilation is deferred till the temperature of a house is risen considerably, and for which the remedy is opening the ventilators widely at one time.

One of the penalties attached to a free employment of fresh loam, especially that taken from the surface of meadows, is a plentiful and most unwelcome supply of wireworms. What these are I need not enlarge upon; what they do is only too evident to those who have used loam in which they abound. They bore into the centre of the underground portion of the stem of Tomato plants, and then eat their way upwards, this meaning death to the plants. Wireworms are easily found in the centre of the stems, that is if they are responsible for the drooping of the leaves, so that their attack can be readily distinguished from all other destructive agencies.

When only a few plants are grown in pots, it is a simple matter to hunt out and destroy the wireworms abounding in the soil, breaking up the lumps of fibrous loam in particular. This plan of pulling fibrous loam into small pieces may not commend itself to those who attach so much importance to having their loam in a coarse condition; but if it is a question of fine soil and no wireworms, or the retention of coarse lumps and what wireworms it may contain, decide in favour of the fine soil. Small ridges of soil may be similarly treated, but hunting for wireworms in the long borders covered by market growers' houses is a "horse of another colour."

A light surfacing of gas lime left on the surface for a month to sweeten, and forked in two months prior to planting, or a dressing of salt, may be of service in freeing the soil of wireworms, but may also be easily overdone, more harm than good resulting. I have never tried feeding the wireworms with rape cake or other delicacies till they burst from repletion, nor have I ever dug in a crop of green mustard with a view to making it too hot for the pests. There is some sense in soaking the ground with hot water, and still more in not depending upon any nostrums. "Catch 'em and kill 'em" is the best motto. Nothing easier, nothing safer, nothing surer. When the plants are put out, plant baits at the same time. Insert short labels or pointed sticks in 2-inch lengths of Carrots in preference to Potatoes, plunge these just below the surface midway between, or not far from the plants, and every second day draw out of the ground, remove all wireworms protruding from them, and return the baits to the ground. Wireworms much prefer Carrots to Tomato stems. I have had two boys at this kind of work morning after morning, and whole potsful of wireworms to destroy. It was a case of death to the wireworms, or no Tomatoes. Can anyone suggest a better remedy? If so, please let us have it.

One more trouble and then I have done for the present, always provided I am allowed to remain quiet. Woodlice and crickets are an "awful nuisance" in many market growers' houses, the strawy mulchings and excellent cover afforded by the hot-water pipes resting on the soil favouring the increase of these destructive pests by millions. As a rule they are slow in eating young Tomato plants, but will "bark" them wholesale if no other food is available, while Cucumbers seem exactly to their liking. I have tried drenching with insecticides, including petroleum mixtures, but they seem uninjured by these, and woodlice actually crawl out of crude petroleum. Hot water rolls them over, as well as crickets, and is by far the best remedy I have tried. All the heat is turned on to a flow and return pipe in the houses we wish to clear of woodlice and crickets, and if a good fire is going the water quickly becomes hot enough to kill these insects. Their favourite haunts are drenched with it, and in the Cucumber houses heaps of dry moss placed for their special benefit are also drenched. If this is followed up it is not many that will survive.—W. IGGULDEN.

HARDY BULB CULTURE IN ENGLAND.

[By F. W. BURBIDGE, M.A. Read before the Birmingham Gardeners' Mutual Improvement Association.]

(Concluded from page 245.)

THE best bulb soils are deep, rich tracts of alluvium or "Trent Warp," beside rivers, or in valleys near the sea. In Lincolnshire there are deep sandy soils, not unlike those of Holland, on which most bulbs thrive well. Near Caistor very fine flowers and bulbs are grown, and so also in the neighbourhood of Boston and Wainfleet. Messrs. Pearson & Sons of Chilwell, Notts, have been very successful in growing Narcissi, as also many market growers in the Thames valley, and especially Mr. James Walker, formerly of Whitton, and now of Ham Common, Middlesex, who was one of the first growers to make a speciality of Narcissus culture for the London markets.

In planting stock bulbs do not plant too deeply. It is true that the finest flowers are those produced by bulbs deeply planted, especially on light, warm, and sandy soils, but such flowers are produced later, and the bulbs' increase is much less than when shallow planting is the rule. A depth of 3 to 4 inches is ample on ordinary soils. It is most important to replant stock bulbs as early as possible, and to perform that operation during dry weather. Plant dry and on a firm bottom. All stock should be planted at latest before August, if the best of results are desired.

Sloping land or banks amongst sheltering rocks, totally inaccessible to horse or plough, may often be made profitable by the spade and bulb culture. I have seen the wind and spray-swept Scilly Islands, and the thrifty flower plots along the rocky Riviera, and I am sure that along our English shores there are sheltered and well-watered spots now lying waste, where many things, if not everything, would be possible to the intelligent bulb grower. It is almost incredible, but it is true, that one hundred thousand (100,000) Hyacinths or Narcissus may be grown on an acre of land. Of Tulips, 115,000 to 120,000 may be grown on the same area; and when we come to such small fry as Crocus, Snowdrops, Squills, Anemones, Winter Aconites, and others, the numbers run up to 200,000 and 300,000 per acre.

Bulb culture often means a double profit, because if produced early the flowers are a valuable crop, and a remunerative bulb harvest still remains. The best results will be obtained by utilising light and airy greenhouses in which to forward or develop the earliest flowers, and in such structures in the sheltered, sunny nooks by the sea, before mentioned as most suitable, but little fire heat will be necessary. These greenhouses are of course available for Tomatoes, or other cultures after the bulbs are over. I shall not go into the price of bulbs per 1000 in order to show you how very profitable bulb growing must be on all suitable soils when undertaken by people who understand the subject. There are several factors that must agree in bulb culture, as in all other ways of making a living off the land.

First, the land must be that naturally most suitable to the kinds of bulbs grown, and naturally or artificially well-sheltered; secondly, the cultivator must not only know how to grow his bulbs well, but how to put them on to the best markets; and thirdly, only the best kinds or varieties popular in the market must be largely grown. In special cases a combined course of culture is better than a simple one—that is to say, fruit trees and bulbs may both occupy the same acreage with advantage, or bush fruits and choice vegetables may also be grown side by side with the bulbs; but on soils especially suitable in sheltered aspects, no culture I know is more surely remunerative than bulb culture. Nothing but a new railway, or the most liberal of building contractors, can induce the successful bulb grower to move on and vacate his holding.

To new beginners the selection of the land is a complex problem—to the experienced it is less difficult. Now and then an accidental clump of bulbs or a fruit tree tells the tale. A practical bulb grower has a seventh sense, and knows as it were by instinct when he sees a suitable bulb soil; but, if at all possible, an actual trial of bulbs of all kinds should be made, when they will soon give evidence of the best, as to the suitability or otherwise of the land. As Arthur Young long ago said, no rental is too high for the best land, and none too low for the poorest of soils; and land that will grow bulbs and fruit to perfection is often to be had at a reasonable rate.

An acre or two of good bulb land will pay better than 10 acres of ordinary farm or garden produce, and I should not like to say the value of a rood even, of such select Daffodils as Madame de Graaff, Golden Bell, or Glory of Leyden—to say nothing of choice sorts that are rare, such as Monarch, Weardale Perfection, Hodsock's Pride, or the big and beautiful Ellen Willmott. The same is true of most of the Rev. G. H. Engleheart's seedlings, not alone of Daffodils proper, but of other sections such as Peerless or Incomparables.

Any hardy bulbs that are worth more than £1 per 1000 in the market will pay to grow. Sound and heavy bulbs, as clean skinned as possible, find a ready sale even though not quite so perfect in form and in coat or skin as those from abroad. I have had bulbs of this class by the thousand from Scilly and the Isle of Wight sent tied tightly in sacks like Potatoes, and they flowered as well or better than the finest Dutch roots packed in buckwheat chaff and paper. The rough exterior of a bulb is not always an indication of its flowering qualities. A smooth skinned and shapely bulb looks better in the store or shop, but it does not always behave better in the garden. All large, sound, and heavy bulbs, even if rough coated, may be trusted to bloom well. As to the comparative merits of Continental *versus* English bulbs, I may say that while I believe our friends in Holland can, or rather do, produce the best Hyacinths, and perhaps also some early Tulips, yet we in England and Ireland can grow by far the best Narcissi, late Tulips, Snowdrops, and Crocus of all kinds. So far as Narcissi are concerned we can defy the world, both in rearing new and in growing all other varieties to the greatest perfection of luxuriant health and beauty.

It is not easy to find out how much is paid by us for imported bulbs from all sources every year, but it must be an enormous sum, and a very large proportion of it might be spent at home in the encouragement of bulb culture on English soil. I am a believer in free trade and in all fair trade; but above all do I believe in our home trade and in our home industries. Finally, I believe that every bulb-grower should also devote some of his leisure to rearing new hybrids and seedlings, so that there may be progress ahead, as well as lateral diffusion in bulb culture.

What Leeds, Backhouse, Herbert, Horsfield, Engleheart, and De Graaf have done, may be equalled or surpassed by other cultivators. Beautiful as are the finest of our new seedlings to-day they are not perfect in all ways, and there is room and a welcome for many more equal or superior to them. It may not be so profitable to rear seedlings as it is to grow quantities of older kinds in good demand, still, given a perfect bit of Narcissus soil, I believe it would soon pay for a clever grower to take up the special culture and increase of all the rarest and most beautiful new kinds. The best varieties of bulbs to grow of course depend on soil and climate, but all the best Narcissi, self Tulips, Squills, Anemones (especially *A. fulgens*), Gladioli, Crocus, and Snowdrops, are profitable crops wherever they will thrive in quantity, and these may be supplemented by other and rarer kinds.

It only remains for me to acknowledge the honour your Association has conferred upon me by requesting me to read a paper before your members; and, having many friends, and many pleasant memories of former visits to Birmingham, my deepest regret is that I could not come over in person. Your city is, and has long been, a centre of horticultural energy and progress, and a history of that constant progress would form one of the most interesting of papers that could be read before you, and one that I hope our good friends Mr. W. B. Latham or Mr. W. Spinks will take the slight trouble of laying before your Association.

[By error we stated in our last issue that Mr. W. Sydenham was present at the reading of this paper; it should have been Mr. Robert Sydenham.]

HYDRANGEAS.

THIS very useful plant being so rarely seen well grown I thought a few remarks on its somewhat simple requirements might be useful to many of your readers. Several growers depend year after year upon their old stock, which with proper management may be grown to give excellent results. We prefer, however, to keep weeding the oldest out and filling their places with younger and stronger plants, which are flowered in 6-inch pots. I have no hesitation in saying that cuttings rooted early in the year and treated in a similar manner to an ordinary bush Chrysanthemum in mode of stopping would the following year produce twenty fair-sized heads of bloom in a 6-inch pot.

Immediately the plants have passed their best we prune them hard back, place them in a warm pit, dewing them over with the syringe two or three times daily, and when well broken they are shaken out and repotted in not too light a mixture, though rich, and placed back in the warmth, where they are allowed to make a good portion of their growth, afterwards gradually hardening them till they are able to stand outside on a bed of coal ashes, under partial shade during the hottest part of the summer. Weak applications of liquid manure are given each watering until the growth is completed, when feeding is stopped.

The plants are allowed to remain outside to get a slight frost to remove the foliage, and are subsequently laid on their sides under the greenhouse stage until the desired time for starting has arrived. The variety I specially allude to is Thomas Hogg, of which we grow about fifty, starting a few at a time to form a long succession. We have at this moment about a dozen plants carrying eight to twelve trusses of bloom in 6-inch pots. These when neatly staked form useful plants for table decoration, though their value is most appreciated for church decoration at Easter.—T. SNELL, *Grimston*.



HAMBURG EXHIBITION.

WE are informed that Baron Sir H. W. Schröder, The Dell, Egham, is sending to the Hamburg Exhibition a collection of his magnificent Orchids. Sufficient will be forwarded to make an exhibit occupying a space equal to 55 square yards. It is probable that the quality of the Baron's Orchids, as grown by Mr. Ballantine, will be a surprise to considerable numbers of our German friends.

DENDROBIUMS IN BEAUTY.

THOUGH the beauty of individual plants of good species and varieties of Dendrobiums is well known and thoroughly appreciated, the sight of a large collection in full flower always claims a wonderful amount of admiration. There is a brightness of colours in one, a depth of tone in another, a softness in a third, and an exquisite harmony in a fourth that maintain the interest and appeal with irresistible force to everyone's sense of beauty. Interesting as is the Veitchian collection of Orchids at all times, no visit was ever more enjoyed than that made recently to see the Dendrobiums in beauty.

Scores of plants were blooming profusely, representing several sections, and inclusive of such as Wardianum, crassinode Waltoni, Dulcie, nobile Cooksoni, Euosmum, splendidissimum, Veitch's var., Wigani, Edithæ, atro-violaceum, Endocharis, nobile Sanderiana, and many others. These names will, however, suffice to show the diversity of the plants that were then in flower. It is surprising how healthy the Chelsea plants always look when the smoke-laden atmosphere in which they are growing is taken into consideration, and Mr. Harris, Messrs. Veitch's grower, is deserving of credit for the incessant care and skill he must accord to them.—VISITOR.

CYMBIDIUMS.

WITH the exception of one or two well-known species Cymbidiums are not popular Orchids, the most grown and most admired species being *C. eburneum* and *C. Lowianum*. It is a very widely distributed genus geographically, the habitat extending from China and Japan in the East to Western India, a few kinds also hailing from Madagascar and the Australian Continent. As a rule, I am told the larger members of the genus grow in the vicinity of water, sometimes being in fact almost in the bed of mountain streams, and this doubtless accounts for their liking for atmospheric and root moisture.

In most instances the roots are large and fleshy, liking a substantial compost and good root room. The smaller growing species of course do with less of the latter than such as *C. giganteum* or similar kinds; and the compost, too, may with advantage be kept a little lighter and more open. Equal parts of peat fibre, loam, and sphagnum moss suit them well, abundance of rough crocks or charcoal being added to this, and also a little dried cow manure or some artificial fertiliser for the stronger growers. The majority do best in pots of suitable size according to habit, and these must be thoroughly clean and well drained, a layer of rough moss being placed upon the crocks to prevent the finer particles of the compost from silting down among the drainage.

Healthy plants usually produce roots in such abundance that the pots are entirely filled with them; they enwrap every bit of compost, and cling with tenacity to the sides of the pot. In such a case it is obviously impossible to spread the roots out, and beyond picking out a few of the lower crocks nothing is needed in this way. A pot large enough to allow a couple of inches of new material all round must be given, and this should be firmly placed with a thin potting stick, but not rammed. On the surface a little new material should be laid and trimmed off neatly, bringing this well up to the base of the last formed pseudo-bulb.

Should the plants by any means have got into bad condition at the roots turn them out, and remove all the old material from

about them. Any that are dead or far gone should be cut clean out with a sharp knife, and it is just as well to wash the living roots that are left and the bases of the old bulbs in tepid water before repotting. A lighter make up of material may be used for this class of plant, leaving out the manure and most of the loam, adding more moss, charcoal, and crocks in the place of it. They are better, too, for a little nursing afterwards, a little more heat and atmospheric moisture, the compost being kept rather on the dry side.

With regard to temperature, such kinds as *C. eburneum*, *C. giganteum*, *C. Lowianum*, or *C. Mastersianum* are often kept too hot. They are quite at home in a cool, moist house such as suits greenhouse Ferns, and may be, in fact often are, well grown with them. Here one seldom comes across cases of flower bud dropping that used to be so frequent in plants grown too warm. The foliage and bulbs take on a deeper green, insects are less often seen about them, and they are more satisfactory in every way. One of these species at least—*C. giganteum*—has been known to withstand frost; but this, of course, is carrying cool treatment much too far.

From the time they begin to grow until the pseudo-bulbs are finished, and in some cases until the flowers are open, these plants require almost aquatic treatment. Owing to the open condition of the compost the water rapidly gets away, and almost daily applica-

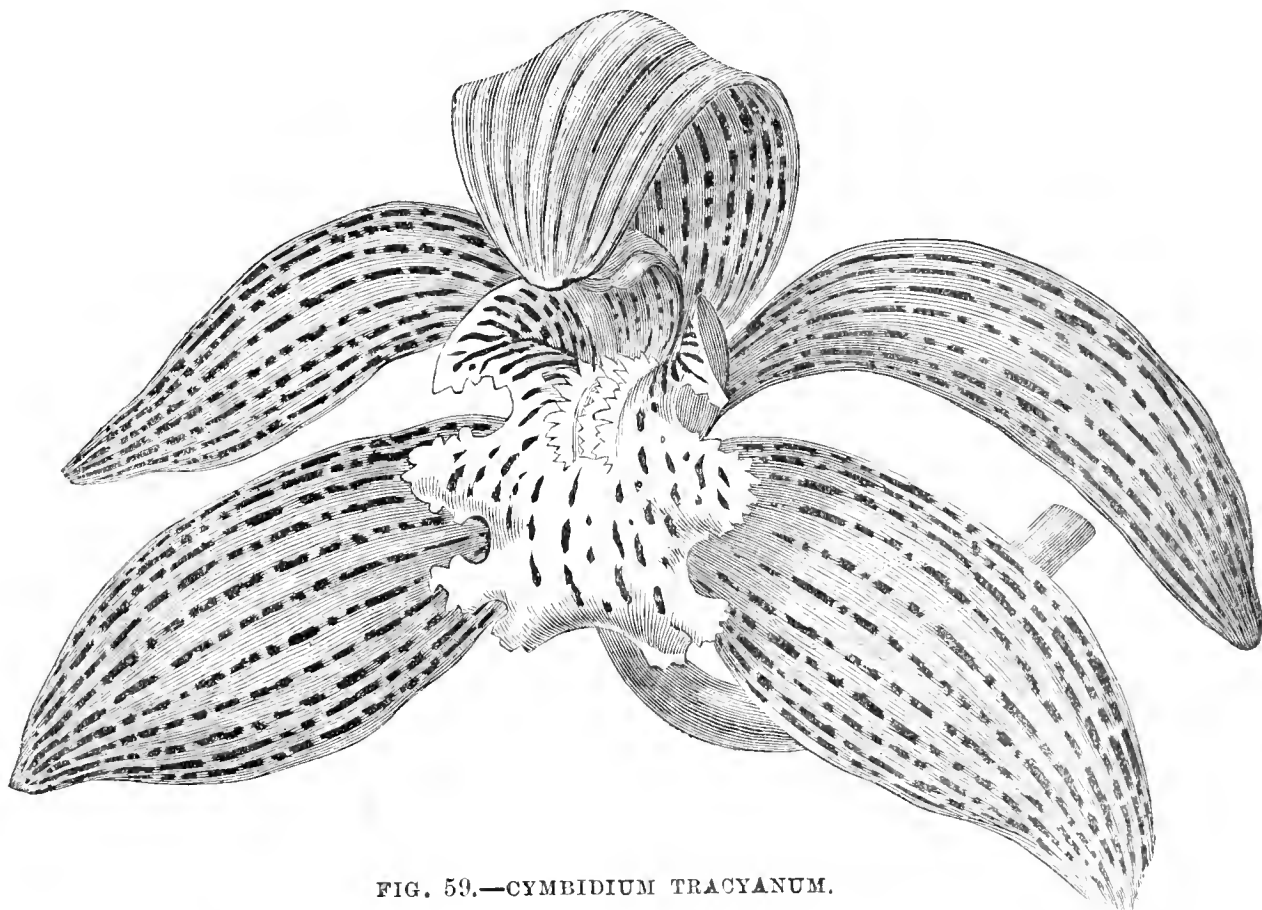


FIG. 59.—CYMBIDIUM TRACYANUM.

tions are required when the weather is bright. During the winter evaporation is of course slower, and root action not quite so brisk, and in consequence less water will be needed. But by this it must not be inferred that they require drying, as this treatment is about the worst possible for them, and weak, puny, oftentimes flowerless growths are the inevitable result. Endeavour then to strike a medium course that will keep the plants plump and healthy, yet not damage or surfeit the roots.

Abundance of air is also of great help. Early in the morning before the sun reaches the house let the top ventilators be opened a little to let out the night moisture. This chink of air can be increased as soon as a slight rise in temperature is felt, and by this gradual increase the foliage will be kept cool, and it will not be necessary to shade the plants so soon. Thus the plants get a nicely tempered and evenly balanced atmosphere combined with plenty of light, and this will go a very long way towards their successful cultivation. There is not space to describe the flowers of these useful Orchids; but all are beautiful, if not very showy, while many combine the two qualities. In most cases they are very long lasting, and often the blossoms are of the most delicate perfume. The beautiful *C. Tracyanum* (fig. 59) is not so well known. In the growth and foliage with the smooth stem or leaf bases it resembles *C. longifolium* or *giganteum*, but the flowers are of great size, 5 inches or more in diameter, with broad sepals and petals evenly and strongly veined or spotted in lines of a reddish tint on a yellow ground. The lip is long and broad, pale yellow spotted with red. The raceme was about 4 feet long, bearing numerous flowers.—H. R. R.

SPRING SCENES.

"SPRING'S Delights" are seen everywhere now in fields, lanes, on banks, and in woodlands, as in gardens. For some time past I have been watching a *Pyrus japonica* on a wall. At first there seemed no sign of life, then a slight swelling of the buds, which increased perceptibly, and now a blaze of scarlet. It was an old tree, open to the public view, and beautified a wall that perhaps would otherwise have been bare. It was a happy inspiration that guided the hand which planted it. In the shrubberies *Pyrus malus floribundus* and others are covered with their wealth of blossoms, and one notices here and there the telling flowers of some of the earliest *Rhododendrons*, such as *fulgens* and *Nobleanum*. "What is that which smells so sweetly?" was asked the other day when walking round a garden. Soon we learnt, and I may say that the *Daphne Mezereum* is without a rival at this time of the year for its delicious odour. There they were, large bushes, both white and pink, and a mass of bloom—surely one of the most charming of Spring's pictures.

Recently there appeared in these pages a brief note on the "London" Almond trees, as the writer aptly termed them, for they seem peculiarly at home amid the outside show of the modern builder. Everywhere in the suburbs of the metropolis one sees them, where they form the brightest of spring scenes. One might go on enumerating the flowering shrubs and trees that are and soon will be features in the garden, but we have other scenes to note.

Everyone is thinking of Daffodils just now, and here we mark the hold which these flowers have during the past few years taken on public favour. I do not wish to assume that the nodding Daffodil has not always been popular to a certain degree, and I remember how in the orchard adjoining an old farm house we used to watch the yellow flowers unfold with pleasure, intermingled with some anxiety that they would be out for the Easter decorations. Under the shade of orchard trees seems to be the true home of the double Daffodil, and it would be difficult to point out a site where they look more charming. The clumps referred to were not cultivated; they grew themselves, yet their non-appearance at this time of the year would have been the talk of the country side. When they were planted no one knew, nor took the trouble to inquire, so far as I am aware. It would, however, be interesting to learn how these showy flowers in the first place got spread about, as we are told they were first brought by the hardy seamen who came from the shores of the Mediterranean to barter for tin and soft metals with the rude inhabitants of the Scilly Isles and Cornwall. Assuming this to be so, when they first brought their bulbs little did they think of the foundation they were laying of the gigantic industry that was to follow centuries after.

Hybridisers have brought their art to bear on the *Narcissi*, and the enthusiastic grower who would ride his hobby to the latest introductions has to reluctantly tighten the rein when he sees them priced at 2 or 3 guineas per bulb. This brings us to the commercial aspect of bulb growing, and when such an expert as Mr. F. W. Burbidge recommends it as a means of pulling the British farmer out of the quagmire of agricultural depression—well, we begin to think there must be something in it. It seems feasible, too, for why should not English land grow bulbs as well as that of Holland? One hundred thousand pounds is a large sum to pay the Dutchmen annually for bulbs,* and in these days it is of the utmost importance that home productions should be encouraged. At the same time we must bear in mind that the English agriculturist follows the track of his fathers, and is loth to depart from it, even though his banking account may be at a low ebb. Moreover, he knows nothing of bulb culture, and must be taught ere he could make it a success. The question is well worth consideration, and perhaps the future may find us exporting instead of importing bulbs. Let us hope so.

Thoughts of utility have caused me to digress, so to return with yet another word about the beauty of the bulb family. Hyacinths in the beds are pushing their showy spikes, and when planted in masses form one of Spring's most chastely painted pictures. They lack, however, the gracefulness of the Daffodil, or the elegance of form noticeable in the Dutch Tulips. "Plant bulbs in the grass," say able writers on the subject; and here is a scene: A breadth of sward, undulating in surface and interspersed by trees and shrubs. In the glades and on sunny slopes were first the Snowdrops, then the Crocuses, and now the Daffodils, with *Chionodoxas* and others of elegant character. Plant bulbs in the garden borders, on the flower beds—anywhere; but it is when we see them under the above conditions that we appreciate the force of the advice aforementioned.

* Do not the importations exceed twice the amount named? We think so, and are glad to know that *Narcissi* bulbs are largely exported from England, also Snowdrops, the demand for these often exceeding the supply.

Yet another picture—this time Polyanthus, so showy at spring time. "Two things are necessary," said a successful grower of the Polyanthus to the writer. "Firstly, a good strain; secondly, strong plants." There is the whole thing in a nutshell; and perhaps the reason why Polyanthus have lost some of their popularity as bedding plants is because the importance of these points has been overlooked. A good strain means large distinct flowers on stout footstalks, and it can only be obtained by careful watching and saving seeds from the best forms. That reminds us that Polyanthus should be raised from seeds sown in cold frames at this time of the year in preference to the ancient custom of splitting the old plants in the early summer. They have then a long season of growth before them, and are large and sturdy at the time of planting. It would be difficult to speak too highly of a good display of Polyanthus, such, for instance, as that which may annually be seen at Hampton Court. Ardent growers also speak well of them as pot plants for decoration, and if taken up and potted, supplying abundance of water, they will not suffer to any extent. Of the Primrose family the blue form seems to be all the rage now, and a daily paper spoke of it as being the chief feature of a recent Drill Hall show. Blue, forsooth! The other day I saw plants of it varying in shade to the deepest purple, and not a small proportion of the flowers were perfectly white. I would like to hear the opinion of other growers as to whether the "blue" Primrose keeps to its true form, or whether its tendency is generally to turn white with here and there intermediate shades of blue.

These notes would be incomplete without a word about Wallflowers, now so beautiful in the gardens, and so eagerly sought after by flower vendors. What spring flower is more popular in London streets or more plentiful in Covent Garden Market? The very name is applicable, as *Cheiranthus* is derived from *cheir*, the hand, and *anthos*, a flower, according to Johnson's Dictionary, in reference to the custom of carrying the Wallflower in the hand for a nosegay. Many market gardeners in the neighbourhood of the metropolis grow large areas of Wallflowers for sale every year, and as the cost of production is light no doubt the returns are satisfactory. The mild winter has been favourable for the plants, and one particularly floriferous form sent out by Messrs. Sutton of Reading has been in bloom for some time past.

Failures often result from too generous treatment. A gardener lost all his Wallflowers during a severe winter except a few that he had planted in an unmanured corner of a ploughed field. He was observant, and learnt his lesson. Next season the stock was transplanted from the seed bed to the hardest and most exposed piece of ground he could find. The result was sturdy plants, that not only withstood frost, but produced an abundance of flowers, and never after did he have reason to complain of failures with Wallflowers. As the time of seed-sowing is not far distant perhaps the hint may be acceptable.—G. H. H.

THE LATE DR. HOGG.

I REGRET that I was unable to be present at R.H.S. on Tuesday last to join in the general expression of sorrow at the loss of our head authority on fruit, as so well expressed by Mr. Wilks. Allow me, therefore, to do so now, and to say further that I have a keen remembrance of many kindnesses from our "good old Doctor," especially when I first emerged, as it were, from the chrysalis state in the provinces to the Fruit Committee.—GEORGE BUNYARD.

IT WAS with feelings of the most profound regret that we saw the notice of the death of the venerable and respected chief, Dr. Hogg. Especially was his loss felt by us when we know the very high esteem in which our poor father held the Doctor, while we have recently been the recipients of his best wishes for our prosperity. On the part of the horticultural world we feel that a loss has been sustained that will never be made good. To all the members of the Hogg family we wish to convey feelings of our deep regret.—W. AND E. LAXTON.

PERMIT me to add my expression of appreciation and esteem over the finished work and noble character of our leading pomologist, since the death of the late Mr. Robert Thompson of the Royal Horticultural Society of Chiswick. In much, perhaps most, of their best work these two great authorities worked as one man for the advancement of the art and science of horticulture. Those of us who have entered into their labours, to ever such a small extent, can appreciate in a small measure the enormous difficulties these pioneers in fruit culture and fruit classification had to meet and to vanquish. Neither was able to finish his work. But Mr. Thompson and Dr. Hogg made it easier for all true workers in this promising field to achieve greater victories, win more solid profits, and enjoy more satisfying pleasures in the near future than have been possible in the past. Dr. Hogg's "Fruit Manual," in various editions, fed the fire of my ambition to keep as nearly as I could be abreast of his knowledge and industry in matters relating to fruit.

culture, and chiefly determined me to devote my future mainly to the higher development of fruit, flower, and vegetable culture, through the technical education schemes of County Councils.—D. T. FISH.

I FEEL I must join in the universal expression of regret at the loss of our dear old Dr. Hogg. It is over twenty-five years ago that I first met him in the Council-room of the R.H.S. at South Kensington. I was then yearning for knowledge of the names of Apples and Pears then unknown to me, but hardly liked to approach the highest authority with a few pocketed specimens. But on an introduction I was very agreeably surprised to find how affable and agreeable he was to impart any information on fruit to inquirers. For that and other favours I shall ever cherish his memory, and feel that gardeners and horticulturists generally have lost a true friend.—C. ORCHARD.

I SHOULD like, as a young gardener, and I am sure I may say on the part of others in the same domain, to tender our deep sympathy with members of the Hogg family in their bereavement occasioned by the decease of the late Dr. Hogg. The biographical sketch on page 232 enlightened probationers respecting the youthful career of the esteemed Doctor, and what lessons it affords. A successful career, terminated amid universal regret; the possessor of great horticultural knowledge, gained by undaunted courage and energetic enterprise, freely and impartially expounded "for gardening and gardeners." Let us hope that this irreparable loss to the horticultural world may teach us to persevere until we reach the ideal of our ambitions. "The Fruit Manual" is a literary monument, and when those who possess it reflect on the benefit derived by its teaching and guidance the name of the author, the late Dr. Hogg, will find a cherished place in the heart of many a gardener.—H. TURNER.

I WAS very sorry to see that we had all lost the good old "Doctor," and to me it seems like the falling of one more of the staunch old ramparts of the past. I knew him since 1869, when he, Mr. Moore of Chelsea, and the late Rev. M. J. Berkeley formed the Chiswick Garden Committee, and a noble trio they were in all truth.

I remember the dear old Doctor once giving me the kindest and best of advice at a crisis in my life, and though I did not see and take it at the time I have since regretted that I did not do so, as time has proved his advice to have been true, sound, and disinterested.

Ah! in those old days (1868) Chiswick was a garden to see and feel proud of. Though not quite, even then, in its most prosperous time, but it was intact, covering 33 acres, and the things and the men of the best. The fruit room alone was a sight to see, and its like could not now be found in Europe. Certainly not in Britain. George Gordon, Robert Thompson, and Robert Fortune, the Chinese collector, used now and then to visit the former scene of their labours and triumphs, and the visits of the Garden Committee were red-letter days indeed.

One or other of the young gardeners used to prepare a frugal luncheon in the old Council room for the Committee. One day it fell to my share to do this duty, and, boy like, I was most anxious, and had things ready half an hour or so before the time. Then I began to look out for the members of the Committee. Seeing another young gardener at work in an enclosed plot near the Council room I shouted to him, "Hev' you seen 'oud Smellfungus about yet?" This was our usual appellation for Berkeley, the eminent fungologist and Fellow of the Royal Society! "No!" he shouted, and I returned through the doorway of the wall, and almost fell into Rev. Mr. Berkeley's arms! Catching hold of me, he asked, "Who were you calling oud Smellfungus just now?" "Yourself, sir," I managed to stammer, though I felt like sinking into the earth. "Ah! quite right," said he. "Good boy; always tell the truth when you are in a difficulty." Just then Mr. Thos. Moore and Dr. Hogg came up, and by the laughter I heard proceeding from the Council room shortly afterwards I suspected that Mr. Berkeley was telling the story to them.

When I was abroad collecting in Borneo Dr. Hogg did not forget me, but asked Mr. Veitch several times as to my welfare, and he also made me a good offer of employment on my return, which circumstances, I need not now mention, prevented my accepting.

Though I only saw Dr. Hogg occasionally I always found him to be a good and faithful friend, and now he is gone from us I feel that I should be lacking in grateful sympathy did I not lay a tiny green leaf of Laurel and a sprig of Rosemary at his feet.

Words sound thin and poor in the face of death, but they are now all that are left to us excepting our grateful memories of such a noble man.—F. W. BURBIDGE.

It was scarcely possible for anyone interested in horticulture, or those who, like myself, have read the "Journal" year by year, to fail to take an interest in all that the good Doctor said or did. May the force of his example and the value of his life's work never fade.—W. HOLMES, *Guernsey*.

[We have not been able to publish all the communications and kind references that have been received on this mournful subject, and have selected those that were generally representative. The kind expressions tendered, whether published or not, are highly appreciated by the family and coadjutors of the dear old Doctor, as are the generous allusions to the memorable event which have appeared in the horticultural press. Mr. Harrison Weir has proposed, in the *Gardeners' Chronicle*, that a fund be raised for providing a "Robert Hogg fruit medal" to be offered as the highest award for fruit by the Royal Horticultural Society.]



WEATHER IN LONDON.—Again we have to record a week of changeable weather, gleams of brilliant sunshine alternating with drenching downpours of rain. Besides these we have had on several occasions high winds that have combined with the rain to make travelling thoroughly uncomfortable. Sunday, both in the morning and evening, was very wet, the afternoon being bright, fine, and warm, as was the whole of Monday. Early on Tuesday morning there was a white frost, followed by a genial day. Wednesday was dull and showery.

— WEATHER IN THE NORTH.—Gusty winds frequently accompanied by heavy showers of rain marked both days and nights of the former part of last week. The afternoon of Saturday was breezy and cold. Sunday morning extremely wet; Monday bright and sharp throughout, with the hills around whitened by snow. On Tuesday morning 8° frost were recorded.—B. D., *S. Perthshire*.

— GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a meeting of the Committee of the Gardeners' Royal Benevolent Institution, held at the Offices, 50, Parliament Street, S.W., on March 26th last, the following resolution was unanimously adopted:—"The Committee of the Gardeners' Royal Benevolent Institution desire to place on record an expression of the deep regret at the severe loss they have sustained by the death of Dr. Hogg, Chairman at the anniversary festival dinner in 1876, a Vice-President, and a Trustee. For the long period of fifty-five years Dr. Hogg had taken a keen and active interest in the work of the Institution. He always had its welfare at heart, and his warm support will be greatly missed. The Committee further desire to express their sincere sympathy with Mrs. Hogg and her family in their bereavement."

— THE QUEEN'S JUBILEE AND HORTICULTURE IN SCOTLAND.—The Royal Caledonian H.S. and the Edinburgh Horticultural Association are offering respectively £120 and £150 for extra prizes by way of celebrating our good Queen's Jubilee. It may be asked what lasting benefit will accrue from such prizes beyond a little gratification to the prizewinners, and there it will end. It is quite certain that it would be more in accordance with Her Majesty's feelings, and be a lasting good to the needy connected with horticulture, if the money were given to the Gardeners' Benevolent Institution and the Gardeners' Orphan Fund. To bestow the money as is proposed will not result in a fraction of benefit to horticulture for the present or future years, and will be of comparatively little benefit to the few who may share in it.—OBSERVER.

— THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—Mr. Chas. Lawton occupied the chair at a special meeting on Tuesday, March 23d, when a most excellent paper was given by Mr. J. Johnson, gardener to G. Marshall, Esq., Claremont House, Grimsby, on "Odontoglossums." He dwelt upon advantages and pleasures to be derived from such cool-house Orchids as Odontoglossums, it being possible with but a comparatively small collection to have blooms during the greater part of the year provided the cultural details are duly attended to. Every point in their culture is of importance, one neglected item often causing much trouble which would otherwise be avoided.—F. L. T.

— WEATHER AND CROP PROSPECTS IN GUERNSEY.—After a spell of six months dreary dripping weather, we have at last had a bright week or two. The effect of this is already apparent in the improved appearance of all kinds of crops out of doors, and it has also had a very beneficial effect upon the Vines and Tomato plants indoors. These had been badly in need of sunshine—indeed, had not the change come when it did, the "set" of Tomatoes in many places would have been a very light one. The damp sunless weather was causing many of the flowers to drop, and where Grapes were being forced strongly mildew had in several instances made its appearance. Now, happily, all is changed for the better, and should the fine weather continue we may yet have an early season. Narcissi have come and gone very quickly, so that, excepting Ornatus, there will be few left for gathering for Easter. Pear trees, now in full bloom, promise a very full crop. Melons have been pretty extensively planted, and in view of the coming busy season of the Diamond Jubilee these should pay well.—X.

— THE QUEEN'S GARDENER.—We understand that by the gracious invitation of Her Majesty Mr. Owen Thomas will shortly enjoy a fortnight's holiday in the south of France—a sojourn that will no doubt prove to be very delightful.

— EARLY SPRING VISITORS.—Swallows have made their appearance here, two having been seen on Saturday, March 27th, which, I think, is the earliest recorded date. The dates for 1894, 1895, and 1896 were April 4th, 9th, and 3rd respectively. It may also be of interest to some of your readers to know that I cut 100 heads of Asparagus from out of doors on March 26th, which is a few days earlier than last year. The very mild nights and bright days is bringing things on apace.—C. ORCHARD, Bembridge, I.W.

— THE SEASON IN THE ISLE OF WIGHT.—During the month of March winds have been high and rains heavy in the Garden Isle; still vegetation has developed rapidly in all parts of the island. Mr. A. Gell, Sandown, has been pulling Rhubarb in the open air since February 26th; Mr. C. Orchard, Bembridge, made his first cutting of Asparagus on the 26th of March. On Saturday, March 27th, several Pear trees were observed in full bloom in Westhill Gardens, Yarmouth, I.W. In many parts of the island early Potatoes are up, whilst Peas are sown in several gardens. There is an abundant show of bloom in the woods and hedgerows of Primroses, Daffodils, Violets, and Periwinkles.—S. H.

— CINERARIAS AT PERRY HILL.—The beauty of collections of Cinerarias when in full flower has frequently been extolled in the pages of the *Journal of Horticulture*, while their culture has often been described by masters in the art of growing them. A few lines may, however, be devoted to a brief reference to what may be termed a London display, which is now on view at the Perry Hill Nurseries of Messrs. Jas. Carter & Co., High Holborn. There may be found a large house completely filled with splendidly grown plants, carrying thousands of shapely, variously hued flowers. The plants are not so dwarf as those of some other strains, but this, to my mind, is by no means a disadvantage, for it allows of the flowers showing themselves off much better than could otherwise be the case. The individual blooms are excellent in shape, the petals overlapping, with in several cases remarkable evenness. The colours comprise whites, reds, and all shades of blues. The strain is known as Carter's Brilliant Prize Cinerarias.—H.

— POTATO SCAB AND A NEW REMEDY.—The scab disease of Potatoes causes annually an enormous loss throughout the country, and the fact that ground on which the crop is scabby one year is infected with the germs of the disease, which will necessitate its being used for some other crop the next year, is an important factor in some sections where it is not customary to follow a strict rotation. There have been various trials of germicides and antiseptics as preventives of the disease, but Potato growers have generally followed the practice of soaking the "seed" for a couple of hours in a solution of corrosive sublimate, a substance which, while most effective as a germicide, demands that it be handled with great precaution because of its very dangerously poisonous properties. However, its use has been rapidly and largely extending, and we have not hesitated to advise its employment whenever asked to prescribe for Potato scab. Dr. Byron D. Halstead of New Jersey, in the year 1895, made a series of trials which led to the conclusion that flowers of sulphur dusted in the rows acted most beneficially as a preventive, but we do not know that any extended trials with this material were subsequently made. In the search for a preventive it is highly desirable that some less dangerous body than corrosive sublimate be discovered, and it is, therefore, with much delight that we note Dr. J. C. Arthur, botanist at Purdue University, reports favourably on the use of formalin, a substance which has been largely experimented with of late as an antiseptic and germicide by physicians and biologists generally in hospital and laboratory practice, and which has given much satisfaction. As this substance is not dangerous, not expensive, and is a powerful germicide, the preliminary notice just issued is an important vindication of experiment station work. Further information is promised shortly; in the meantime the following quotation will explain the method of use:—"Eight ounces of the formalin are added to 15 gallons of water, and in this the seed Potatoes are soaked for two hours. After being taken from the bath they can be cut and planted as usual, either at once or after some time. Formalin is not corrosive, and so can be used in any kind of vessel, and not being poisonous there are no particular precautions to be observed. It does, however, make the hands smart if there are any raw spots, and the fumes irritate the eyes and throat. But these are only slight annoyances."—"American Gardening.")

— THE NATIONAL AMATEUR GARDENERS' ASSOCIATION.—The National Amateur Gardeners' Association will visit Messrs. Barr and Sons' Nursery, Surbiton, on Saturday, 10th April, leaving Waterloo (South Station) at 2.33 P.M. Return fare to members, 1s. 3d., on application to the Hon. Secretary—LEONARD BROWN, *The Cottage, Seven Arches, Brentwood*.

— "FERNS AND FERN ALLIES."—We have received a small pamphlet containing a list of the Ferns and Fern allies (all the vascular Cryptogams) that are cultivated in the University Botanic Gardens at Cambridge. The list occupies eight pages, and comprises hundreds of names. The preparation must have entailed a considerable amount of work on Mr. R. Irwin Lynch, the Curator, by whom it was undertaken.

— VIOLETS FROM THE NORTH.—As Violets are attracting a good deal of attention at the present time, I am sending you a few blooms of a new variety that originated here a few years ago as a sport from Count Brazza's White Neapolitan. In its charming colour and fragrance it seems identical with the old Neapolitan, but it is a much stronger grower. The flowers are not so large as last year, owing to the plants having suffered a good deal from red spider last summer.—NORTH-NORTHUMBRIAN. [The specimens were excellent, and the variety is evidently well worth growing.]

— POTATO PESTS IN AMERICA.—For some years past Potatoes in many parts of the country have shown unsightly pimples or projections on their surface, which have seriously diminished their value. The cause of this pimply condition has not been thoroughly understood until certain investigations carried on by the New York Experiment Station in Long Island showed that the injury was worked by a small flea-like beetle, well known as the black Cucumber beetle, which has been detected in eating holes into the leaves of the Potato and Tomato just as it does in the leaves of the Cucumber. These voracious insects, however, are not the immediate cause of the mischief, but minute white grubs which are hatched from the eggs laid by the female beetle. These grubs burrow into the tuber and cause the pimples and the sliver-like projections which accompany them. The pimples result, it is probable, from the irritation caused by the worm, and the slivers are slender canals in which a single grub feeds. Either one of these characteristics of the disease may be found without the other. Bulletin 113 from the Geneva Station gives this important information, and states clearly how the disease can be controlled. The Bordeaux mixture, which has been found useful for so many purposes, is an efficient remedy here also, and when thoroughly and intelligently applied it keeps the beetles away from the plants.—("Garden and Forest.")

— WAKEFIELD PAXTON SOCIETY.—"Some Phases of Bird Life" was the title of a most interesting lecture delivered by Mr. George Parkin, at the Paxton Society's meeting, on Saturday evening the 18th ult. Cr. Milnes occupied the chair, and Mr. Herbert Chapman the vice-chair. The Chairman at once made way for the lecturer, who treated his audience to a lecture on some of the less known and less common features of bird life. The various subjects treated were beautifully illustrated with limelight views, ably shown by Mr. Harold Parkin, son of the lecturer. The first picture was a "freak," and this was the only one of the kind shown throughout the evening. Amongst other birds exhibited were pheasants of all varieties, such as the white, or albino pheasants, female birds assuming the plumage of the male; pied birds, with some illustrations of almost white blackbirds; cream coloured starlings, pied sparrows, pied robins, cream coloured swallows, the cuckoo, the renowned great auk, the principal British divers—the great northern diver, the black-throated diver, and the red-throated diver. Some curious specimens of birds' nests were also given, showing the wonderful adaptation to circumstances exhibited by the birds when building. The concluding slides were mostly of sea birds and their homes, the various breeding grounds on our coasts, with such well-known places as Flamborough. The methods employed for obtaining these eggs were also lucidly explained, and examples shown on the screen. A vote of thanks was unanimously awarded the lecturer and the lanternist for their services, on the motion of Mr. Webster, seconded by Mr. L. Dobinson. The Vice-Chairman announced the death of Dr. Hogg, editor and proprietor of the *Journal of Horticulture*, a well-known writer on these matters, and a friend of the Wakefield Paxton Society. He (Mr. Chapman) moved a vote of condolence with Dr. Hogg's family. This was seconded by Mr. George Gill of Eastmoor, a personal friend of Dr. Hogg's, who, on the occasion of his last visit to Wakefield, paid a visit to his garden, admired his extensive and beautiful display of Tulips, and made some interesting comments upon them.

— **SALE OF FRUIT PULP.**—A sale by auction of fruit pulp was held at Lenham, near Maidstone, a few days since, when 1400 tons passed under the hammer. We learn from a Kentish paper that there was a good attendance, and although the prices obtained were not particularly high there was a brisk competition for the various lots. The leading prices obtained for the pulp in bulk were—Damson, 32s. to 40s. per ton; green Gooseberry, 37s. to 55s.; red Gooseberry, 37s. 6d. to 67s.; Raspberry, £18 to £19; Black Currant, £18 to £45; and for the same, two-thirds whole fruit, £26 to £27; Red Currant, 72s. 6d. to 125s.; Morello Cherries, pulped, 25s.; the same, whole fruit, 32s. 6d. to 37s. 6d.; Blackberry, 27s. 6d. to 30s.; Black Diamond Plum, 30s. to 55s.; Victoria Plum, 45s. to 87s. 6d.; Green Gage Plum, 30s. to 50s.; Mogul Plum, 30s. to 32s. 6d.; Orleans Plum, 30s. to 35s.; and Apple, 25s. to 35s. per ton.

— **AMUSING CLAIM FOR PLANTS.**—The Cardiff Burial Board recently purchased some land for the purpose of enlarging the cemetery, and three of the tenants claimed compensation. One of the claims was for £500, and the specified items included the following:—Two hundred Michaelmas Daisies, eleven Polyanthus, five roots of Anemones, three Jacob's Ladders, six Aule major, one Evening Primrose, 4 feet Father Before Son, two Lilacs, eleven pink Carnations, one Sunflower, four hundred and twenty Daisies, one Pansy, two Musks, two Noah's Arks, a further two Michaelmas Daisies, and two Gladioli. Our knowledge of Welsh plant names is not sufficient to enable us to identify "Aule major" or "Father Before Son," and none of the dictionaries of plant names that have a place on our bookshelves afford us any assistance. "Jacob's Ladder" is, of course, *Polemonium coeruleum*, and "Noah's Ark" is *Cypripedium pubescens*.—(Gardeners' Magazine.)

— **PEAR BLOOM.**—There is every promise of a wonderful bloom on Pear trees shortly. I could wish it were not quite so abundant, and that the buds were rather less precocious. I do not think the organs of fertility in Pear blossom, or, indeed, in any fruits, are helped by slow expansion. Too often a long cold dull spell of weather, which keeps the buds in check, is inimical to fertility. It is intensely disappointing to see trees literally masses of blossom and then a few days later it has all disappeared, and a very poor set of fruits left behind. Does so great an abundance of bloom by so far exhausting the tree—for bloom expansion usually precedes leaf expansion—so far exhaust the trees that pollen grains lack the elements of fertility? It would be a capital plan were those who have numerous Pear trees that are so abundantly set with blossom buds to cut off one-half of the clusters, leaving the spurs, to see what was the ultimate effect on the cropping of the trees as compared with others of similar varieties not so thinned. According to present appearances the bulk of the trees should be masses of snowy whiteness by the end of the month. That is too early, and there would be more hope for a good set a fortnight later. However, in such case it is not possible for us to set back the course of Nature, though by the aid of some dull cold weather Nature may do it herself. We have had three or four very sharp white frosts, but some of the day hours have been warm.—A. D.

— **CHELSEA PHYSIC GARDEN.**—The suggestion that the Chelsea Vestry should apply to Lord Cadogan to have conveyed to them the old Chelsea Physic Garden on the Embankment, near Cheyne Walk, in commemoration of the Diamond Jubilee, seems to offer a faint hope of a satisfactory termination of a long-standing agitation; but unfortunately the matter does not rest with Lord Cadogan, but with the Apothecaries' Company. The case affords a striking example of how the objects of the pious founder may be frustrated, and mischief done where good was intended. The garden was conveyed in 1721 by Sir Hans Sloane, then Lord of the Manor of Chelsea, to the Apothecaries' Company by deed of gift, on condition that it should at all times be continued as a physic garden for "the manifestation of the power, and wisdom, and goodness of God in creation, and that the apprentices might learn to distinguish good and useful plants from hurtful ones." But the Royal Botanic Garden, as it is officially called, is now surrounded by houses, and is really no use for these purposes; and though there is a greenhouse and a medical library there, the growing of medical herbs has come to be a mere formal compliance with the terms of the gift. Science would certainly lose little by converting this quaintly pretty spot, with its statue of the worthy Sir Hans, and its magnificent old Cedars of Lebanon, into a pleasure garden open to the public. At present it is hidden from sight on one side by a high and particularly ugly brick wall, and on the other can only be dimly discerned through a close set iron railing.—("Daily News.")

— **NITRATE OF POTASH.**—Nitrate of potash accumulates in valuable quantities in the organically rich alluvial plains of India and China, the nitrate rising to the surface with the moisture by capillary attraction in the hot dry season. There have been discoveries made lately in South Africa of nitrate deposits of a high degree of purity, and said to be in enormous quantities, derived from the direct putrefaction of animal excreta.

— **BIRMINGHAM GARDENERS' ASSOCIATION.**—A very interesting paper on "Hardwooded Plants" was read by Mr. Walter Jones, gardener to Thos. Gladstone, Esq., Edgbaston, on the 29th ult., before an appreciative assembly of the members. The essayist is a well-known old local exhibitor of stove and greenhouse plants. The subject, which was treated in an excellent manner, was followed by an interesting discussion.

— **BAKED BANANAS.**—South Americans say baked Bananas are an excellent substitute for meat. They travel, fish, and hunt solely upon a Banana diet. For those weary of meat or unable to eat it (during the warm weather nearly all of us would gladly do without it) it would be well to try the baked Banana. Each end should be cut off, the jackets being left on, after the fruit is washed. From twenty to thirty minutes are needed for baking. They are placed upon the table, and one served to each person, instead of his usual piece of roast or fowl. They should then be slit lengthwise and buttered; the butter greatly improves the flavour.

— **NITRAGEN.**—Prof. W. Somerville has carried out a series of comparative experiments to test the value of the pure cultures of the several varieties of bacteria that inhabit the roots of our more important Papilionaceous plants, now sold under the head of "nitrogen." The investigation was described before the Botanical Society of Edinburgh on January 14th. Experiments were made with Peas, Broad Beans, Lucerne, and broad Red Clover. Only in the case of the Peas did the application of nitrogen result in an increase in the yield, and even then the variations in the weights of produce were too small to make it possible to say definitely that the inoculating substance affected growth either one way or another. The experiments were carried out in a garden attached to the Durham College of Science, in which it may be assumed that Peas and Beans have frequently been cultivated during recent years. As the soil was thus well supplied with the bacteria that associate with the roots of these plants, Prof. Somerville agrees that it is not surprising that the application of a pure culture of these bacteria should have been inoperative. But as regards Red Clover and Lucerne, neither of these plants has ever been cultivated in the garden, and the probability is that not a single plant of Lucerne ever grew in the garden, or, indeed, in any fields in the neighbourhood. The conditions, therefore, were to be regarded as distinctly favourable for exhibiting the action of the specific bacteria of these plants, and yet they failed to produce any effect. Apparently some improvements are required in the methods of manufacture or application in order to make nitrogen of service in agriculture and horticulture.—("Nature.")

LINES ON READING A SEED LIST.

Let others sing the Lily and the Rose,
Or scented secret of the Violet praise,
To me the meanest Broccoli that blows
Is more deserving of a laureate's lays.
And I would sing the Celery's stately ways,
The mysteries of Chili and Cardoon,
With laud of Leek and Lettuce fill my days,
And sing the Mushroom to the mild May moon.

What is a flower, when all is said and done?
'Tis, to the eye of sanity, a weed.
Look rather kindly, fructifying sun,
On my Savoy and Scorzonera seed!
O mother Earth, from thy rich bosom feed
My Parsley and my Parsnips and my Peas,
To glorious growth my Gourds and Marrows lead,
And my Shallots shall breath your eulogies.

Who sings of flowers? Mesembryanthemum
Shall pale before the Radishes I sow!
Cilanthus, Coleus, and Chrysanthemum—
My Cucumbers shall shame them at the show.
Kohl Rabi, sprout! Endive and Egg Plant, grow!
Thus watered by a poet's lyric tear,
And let the haughty horticulturist know
The kitchen garden is the Muse's sphere!

—("Pall Mall Gazette.")

HYBRID NARCISSI.

YEAR by year the number of Narcissi is being increased by a few cultivators who spend much time and trouble in the work of hybridisation. One of those whose efforts have been crowned with some truly remarkable results is the Rev. G. H. Engleheart. This worker has already in previous years given us many of great excellence, but crowned all his efforts so far by the exhibition on Tuesday, March 23rd, at the Drill Hall of two varieties named respectively Southern Star and Ellen Willmott. The first named belongs to the small cupped (*parvicoronati*) section, and is really superb. The perianth segments are broad, stout, and white in colour. But the chief feature in the flower is the cup, which is singularly broad and spreading, while the colour is bright orange red, becoming richer as it approaches the slightly fringed margin. The woodcut (fig. 60) depicts this gem amongst Narcissi. Ellen Willmott, of which fig. 61 is a representation, is a massive bicolor that can be placed second to none, even in this section of beauties. The blooms are large, bold, and wonderfully telling, standing up in a most desirable manner. The perianth segments are pure white in colour, broad, and of remarkable substance. The trumpet is of the brightest gold. The Narcissus Committee of the Royal Horticultural Society awarded each of the varieties figured a first-class certificate.

BEDDING
CALCEOLARIAS.

How disappointing it is to have gaps made in flower beds when they should be at their best, by that mysterious "going off" so prevalent among Calceolarias. Under the best of management a few plants will occasionally succumb, but the losses may be reduced to a minimum if the plants are properly prepared and planted in their summer quarters at the end of April or early in May.

Too often, I fear, the plants are left in their winter quarters till bedding out time arrives, instead of being transplanted in March. There is also a great tendency to unduly coddle Calceolarias, and in following such a course the cultivator takes a great amount of trouble, which might with advantage to the plants be dispensed with. At the present time we have about a thousand well rooted plants in frames, and before these lines appear in print I hope to have them all transplanted into beds 4 feet wide. The soil is already manured and dug, and the outline of the beds bounded by strips of board 10 inches in width, which are fastened to upright stakes driven into the ground. The plants will be lifted with nice balls of earth and planted 5 inches apart, the soil being pressed firmly around the roots as the work proceeds. If old lights were available these would be placed over the beds for a time, but as they are not at command strips of wood will be laid across the boards forming the edge of the beds, and these covered with garden mats. These mats will not be removed for a few days should the weather prove bright or windy; after that time they will be taken off each morning and put on again at night. When cutting winds prevail during the day the mats will not be removed, and by the beginning of April the night covering will be dispensed with unless a sharp frost seems likely to occur. A few degrees will not injure Calceolarias when properly hardened. I have followed this practice for several years, and have found it to answer well in every way.

When it is not easy to obtain boards to form sides for the beds a trench should be taken out 6 inches in depth, and the soil thrown up on either side. This will be found to give good shelter and plenty of head room for the plants. After levelling the ridges and beating with the back of a spade all is ready for planting and covering by means of cross stakes and mats. Plants grown under conditions above described are sturdy and hardy, will bear with impunity cold and frost severe enough to seriously cripple others that have been

coddled or grown too closely together. The former may therefore with safety be planted in their summer quarters at the time named, as it is important to get the plants thoroughly established before the drought of summer begins.

I have several times planted out Calceolarias during the last week in April, and these have more than once withstood 10° of frost without the slightest protection. All who have experienced a difficulty in getting good beds of Calceolarias I strongly advise to try the plan above detailed.—FLOWER GARDENER.

PLANTING OUT SHRUBBY CALCEOLARIAS.

THE half-hardy shrubby Calceolaria is not, perhaps, quite so popular for decoration in the flower garden as formerly. In its season of the first flush of blooming it is most attractive and showy, and merits a place on a border or in a bed where the plants can be massed together to give a decided tone of colour. A mass of Calceolarias when in good health and full of bloom never fail to elicit admiration. Although numerous other plants now compete with them in attractiveness, and probably surpass them in usefulness, yet yellow and brown Calceolarias still occupy a place in popular regard. It is true that the flowers are not the best for cutting purposes, as they soon drop. Hence their usefulness lies in affording a display upon the plants.

The treatment of Calceolarias is simple enough, providing the details are carried out at the right moment. It is quite wrong to allow the plants to stay in the cutting beds until late in May or into June. They become in these positions attenuated and unable to reveal their true character, which is, under suitable conditions, sturdy and shrubby.

In order to do justice to Calceolarias there are several methods of treatment applicable now, one of which should be adopted so as to secure good results in the culture of these plants. It will be evident to all who have safely wintered a number of cuttings in a frame, that the plants now need more room. Some time ago they commenced to form roots freely, and shortly afterwards to extend the stems, forming fresh foliage. As soon as this was apparent the growing points were nipped out, which has caused several shoots to form and grow simultaneously. All this has been done under airy conditions—that is, the plants have had a constant circulation of fresh air about them, with full exposure whenever frost was not

present or expected. Under any other conditions the growth would have been tender and elongated.

Methods frequently adopted are to lift each plant separately, transplanting in frames wider apart, or to place them in 5 or 6-inch pots. The best method, however, is to lift and plant at once in their flowering positions. At no time will they lift and plant better. They have time to become thoroughly well established while making slow and steady growth, which is essential to a bold, sturdy, floriferous habit.

The ground for their reception should be moderately rich and not too light. An application of decayed manure and a little leaf soil will give something for the roots to lay hold upon, and assist in retaining moisture in the soil, which is as essential as any food the manure supplies; in fact food supplies from any source are not available without a due supply of moisture in the soil. Incorporate the soil and materials added well together.

If the ground were well manured in the autumn, or for a non-exhausting previous crop, no manure will be necessary, but the ground may be well broken up, inasmuch as the planting can be better carried out. Eight to 12 inches of space may be given to each plant. The latter ought to be raised from their position in the frame with as much soil adhering to them as possible. Place in holes sufficiently large, and sink them a little lower in the soil than they were previously, so that the roots near the surface may have something fresh to work in and feed upon. Watering is scarcely needed, but should the soil in which the plants were previously growing be dry, a thoroughly good soaking should be given before lifting.—E. D. S.

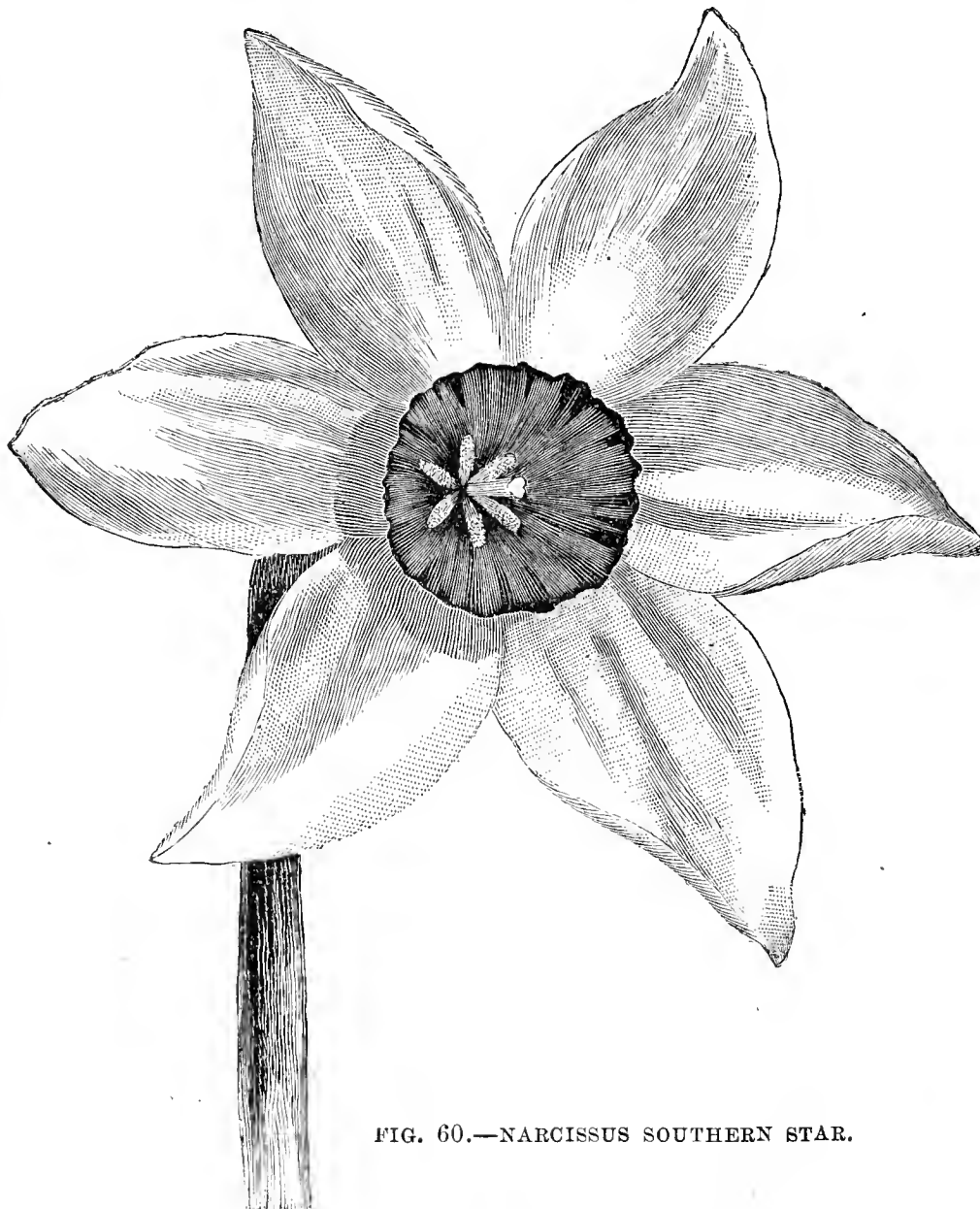


FIG. 60.—NARCISSUS SOUTHERN STAR.

KITCHEN GARDEN NOTES.

WORK in the kitchen garden has during the present year been performed under exceptional difficulties. Continual rains and an absence of sunshine has thrown out of order the regular working of the soil and sowing of crops. The consequence is, that although vegetation generally is in a somewhat forward stage, kitchen garden operations are in a backward state.

A welcome change in the weather has apparently arrived at last, and all good cultivators know that it is now necessary to use every effort to bring up as far as possible arrears of work, so that crops may become fairly established before the drought of summer comes. In many instances, I fear, the sowing of the main crop of Onions has yet to be made, and numerous complaints of the ravages of maggot may, under the circumstances, be looked for later on. Much, however, may be done in the way of preparing for the attack of this insidious foe by dressing the soil heavily with soot as the seed bed is prepared, and by scattering dry wood ashes along the drills before sowing the seed. Another dusting of soot ought also to be given on a showery day, as soon as the young plants are well above the soil. Trivial as these matters may appear they are factors in cultivation which ought not to be neglected by those whose aim is to "deserve success."

The main crop of Carrots should now be sown as soon as possible, for there is always the danger of an attack of grub to be feared when late sowing is practised. A plentiful supply of dry wood ashes placed in the drills before sowing is the best precautionary measure to take that I am acquainted with. It is a plan I have often recommended in cases where grub has been troublesome, and its adoption has invariably been attended with satisfactory results. It is, perhaps, difficult to advance a convincing reason why this is so, but my opinion is that the minute particles of wood ashes favour rapid germination and root production; the young seedlings, therefore, become firmly established before dry weather sets in, and it is usually during dry summers that grub is so destructive.

Those who were fortunate enough to sow early Peas and Spinach during the few fine days that prevailed during the last week in February have cause to congratulate themselves, as both have made good progress; for notwithstanding the many wet days we have experienced since the soil has not been particularly cold, and later sowings will not, as in some previous years, overtake crops sown several weeks earlier. Cabbage plants, as a rule, are very backward this season, owing, no doubt, to the long spell of cold and wet during August and September last. This checked the young plants so much that in many instances they were not large enough to plant in their permanent quarters at the usual time, and those who left them to winter on the warm borders where they were pricked out will this year have the advantage in point of earliness over others who followed the usual course.

The time has, however, now arrived when plants in all stages may by taking a little extra trouble be considerably hastened towards maturity. On bright days the hoe should be kept going among them; the warm air will then penetrate the loosened soil, sweeten and enrich it, and by so doing start into activity innumerable thread-like roots. Those who are yet sceptical as to the possibility of forwarding crops by these means should remain in doubt no longer, but test the matter for themselves. Let the hoe be run through half their Cabbage bed twice weekly, while the other half is left untouched, and I shall be much surprised if they need further proof of the correctness of this scientific principle. A little later on when the plants are growing freely a small quantity of nitrate of soda should be sprinkled between the rows, choosing a showery day for the purpose.

Lettuces have not wintered well with us, and excepting a few dozens of plants grown in a very warm position, our spring-sown plants seem likely to overtake those sown in August last. Golden Queen and Early Paris Market are a pair very hard to beat in point of earliness and good quality.

Asparagus Kale is at the present time affording a plentiful supply of greens of the choicest description—indeed, there is nothing among Borecoles to surpass it during March and April. This should be borne in mind and acted upon, now that the time for seed sowing has arrived. The next few weeks will be extremely busy ones to kitchen gardeners and allotment holders, as the work of sowing and planting must perforce be pushed on with all possible speed, for when the performance of these operations is too long delayed, scanty or diseased crops are often the result, and general work is kept in arrears throughout the summer. The good cultivator therefore realises that the present moment calls for an extra effort on his part in the endeavour to derive a full share of benefit from Nature's storehouse, the soil.—KITCHEN GARDENER.

PEACHES AND NECTARINES.

It is well known that thinning the fruits has for its object the production of flesh with a minimum of skin and stone. This requires early attention to attain the end in view, especially where the fruits are

too thickly set, removing those that are badly placed first, and performing this often-neglected operation gradually. It is well, however, to let the fruit attain the size of horse beans before removing any but the very small, and in thinning the others remove those at the back or under side of the trellis, leaving the best placed for receiving light, three to five being retained on a last year's shoot, to be reduced to two or three when the size of marbles, and when not larger than Walnuts to two on strong shoots and one on weaker, always retaining a few over the number required for the crop to meet casualties in stoning. Likewise have regard to the vigour of the trees and the relative size of the different varieties, weakly trees being more severely thinned in the fruits than those which are vigorous, and the large-fruited varieties more than the medium-sized.

Disbudding is a very unnatural but essential process in cultivation. It should be commenced early and followed up at short intervals until no more shoots are left than are necessary for bearing another season, attracting the sap to the fruit, and for furnishing and extending the tree. This means a shoot being left at the base of each bearing one to take its place after fruiting and cutting out, training in its full length, or if likely to become too long stopping at about 14 inches. Then a shoot must be retained on a level

with or above the fruit, and this stopped at the third leaf, all laterals in either case being pinched at the first and to one afterwards as made. Extensions of last year's shoots should be left at about 15 inches distance to form bearing wood, and the extremity growths taken forward, laying in shoots where required for furnishing the trellis early in every part with branches and bearing wood on them in due course, avoiding overcrowding.

Of insects the most troublesome next to red spider are aphides. Fumigation with various preparations of tobacco, self acting or otherwise, and vaporisation with nicotine essence, are still the best means of destroying aphides under glass. But both fumigating and vaporisation must be practised very carefully in Peach houses with trees in tender leaf, indeed at all times with the fruit, from setting to stoning, always having the foliage dry, and taking special precaution against an overdose by moderate application, repeating if necessary at short intervals, or on consecutive evenings to effect a clearance with safety. When an overdose is given the leaves are scorched, and the damaged parts shrivel and fall off, thus giving the trees the appearance of having had the foliage eaten by insects. Tobacco water leaves a stain on the fruit, which may or may not disappear with subsequent syringing. It acts very effectively against all the race of aphides, and a pint of strong tobacco juice to 3 gallons of water serves as a preventive and remedy. The various advertised insecticides serve equally well, and in some cases better than home-made ones, always being careful to follow the instructions.

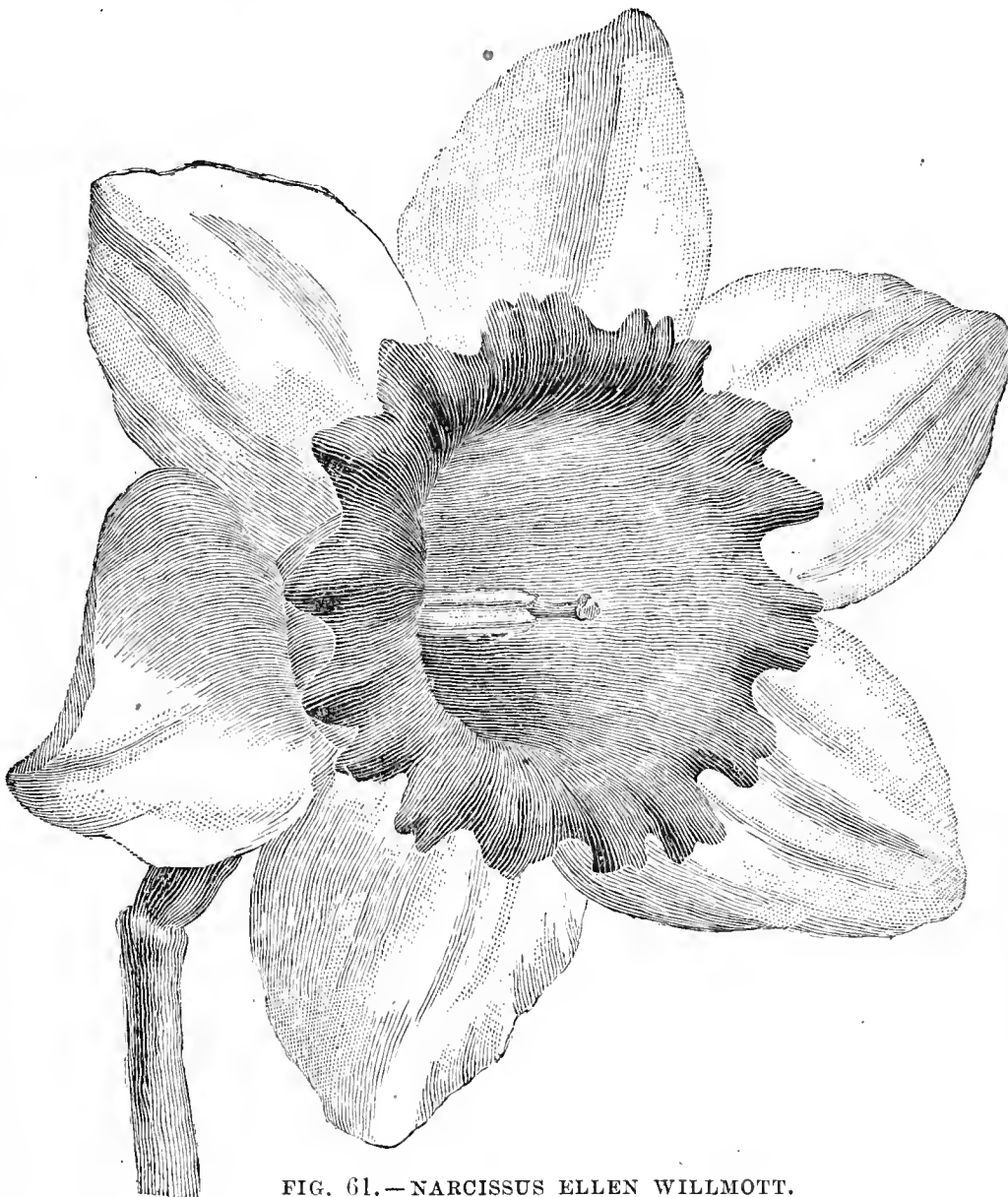


FIG. 61.—NARCISSUS ELLEN WILLMOTT.

Brown aphides are more difficult to kill than green fly, as they have such shining bodies, and hug the twigs so tightly as to throw off solutions intended for their destruction, but the narcotic properties of tobacco overcome the pests. This can be applied with a brush, or rub the infested parts gently with the fingers frequently dipped in the liquid, then followed with the tobacco water by means of a syringe to make sure of stragglers. Timely attention, however, to first attacks of these pests on the shoots often saves a whole house.

Soapy solutions are potent for the prevention and destruction of red spider, but prevention is better than remedy, and a few are easier killed than a great number. To prevent or destroy aphides, red spider and mildew at one application, a somewhat strong decoction of quassia chips and solution of softsoap may be used, 4 czs. of quassia chips being steeped overnight in a gallon of rain water, then boiled a quarter of an hour, adding to it as it cools 4 czs. of softsoap, straining and applying to shoots infested with brown aphides by means of a brush, or dipping them in the mixture, and rubbing gently with the fingers. The material is sooner applied with a syringe, and better with a spraying nozzle than through a rose; but I find it best to go over the trees in the manner indicated, and having dressed the worst parts spray the trees thoroughly, syringing the following day with clear water. If repeated twice or thrice the black and brown aphides are got rid of, but it is not necessary or desirable to use the mixture so strong for aphides and red spider, as it is safer and quite efficacious at half strength, having two gallons of water instead of one.

—GROWER.

SEASONABLE HINTS ON FLORISTS' FLOWERS.

AFTER a long period of wet and stormy weather there seems to be some prospect of a change, which will be especially grateful both to farmers and gardeners, and the cultivators of florists' flowers are beginning to hold their heads up. A busy time is before us, for the broken weather has greatly retarded both farming and gardening operations. It has been difficult to snatch a time for planting the *Ranunculus*, and one is only waiting now for a few dry days in order to plant *Gladiolus*, so let us see what is to be done with our favourites.

AURICULAS.

Where drip has been successfully excluded these delightful spring flowers have a most flourishing appearance; the mild winter has been in their favour, and although I do not think they are particularly early, it seems as if we are on the point of having a good bloom. As the practice of top-dressing has been to a great extent abandoned, there is little to be done now except to watch the development of the trusses. Where it is wished to have a thoroughly well-proportioned truss, scissors must be carefully used to get rid of some of the pips when they are too much crowded, and as the plants are now growing rapidly they will require frequent watering. Wherever it is possible rain water should be used. There ought to be no difficulty about that, as in the four months of this year we have had more than 8 inches.

It would be well in a little while, when the pips begin to colour, to screen the plants from too much sun. While in all other classes of flowers new varieties are pushing the older ones out, the Auricula is still very chary of admitting new varieties into its ranks. Thus, for instance, our great northern champion exhibited a stand of twelve at the last spring show of the Southern National Auricula Society, of which eleven, I believe, were new ones raised by himself and friends, and yet of these only one was in commerce, and probably this the least desirable of the lot. We go to the exhibition, admire the new seedlings, but alas! it is admiring them at a distance; the hope of obtaining them is but a shadowy one, and very often some of those which gave promise in their youth fail to fulfil that promise as time goes on. The date for the Southern show is fixed very early this year; but one can only hope the fine weather we are now experiencing may bring the plants on in time for it.

CARNATIONS AND PICOTEEES.

It has been a curious season for these plants, at least last autumn was most unfavourable for the rooting of the layers. One of our largest growers for sale told me he had never had so many badly rooted ones; in many cases the layers were left on the plants in the hope that in the early spring they might somewhat recover themselves. I have just planted out my own beds, and the plants in the main were fairly well rooted; they had been in pots in the frames during the winter, and were singularly free from spot and aphides. They were, however, most of them from seedling plants, and were consequently border varieties.

GLADIOLUS.

The very wet condition of the soil has greatly hindered the planting of these bulbs, but if we have a continuance for a few days of fine weather I shall soon be busy about mine. In planting them it is well to give them plenty of room, and to see that they are firmly planted. A little very coarse sand or road grit may be placed about them, but I do not care for fine sand, as it becomes too close, and does not give the roots that freedom of action which they like to have; and I think that the distances which I have always given—that is, of rows 12 inches apart, and the roots about 9 inches apart in the rows, and about 4 or 5 inches deep—cannot be improved upon. I have said nothing about preparation of the beds, because I gave directions for that in the autumn, and it is too late now to apply any manure. I find there is still a good deal of confusion in people's minds about the *Gladiolus*. Some tell me, "Oh! we do very well with them;" but when I come to

inquire I find that the sorts grown are either *Brenchleyensis* or some of the *Lemoine's* section, which are certainly more easily grown, and not subject to the disease which is so fatal in most gardens to the hybrid *Gandavensis* section. However much people may admire this section the number of those amateurs who grow it to any extent rather diminishes than increases.

PANSIES.

I have, alas! little to say on the subject of these flowers. The drought in the early part of last year was fatal so far as my own small collection was concerned. It is one of those florist flowers which do not flourish in the South of England, and when one recollects how grandly they grow in Scotland and the North of England, I cannot but feel that it is growing them under difficulties here. As far as the winter is concerned they would probably have done very well in beds, but I have not ventured upon that method of growing them for years, as they used to get so eaten off with snails and slugs. By-the-by, has anyone noticed that notwithstanding the wet and mild winter how few of these pests of the garden there are about? People have a notion that a hard winter destroys these, and that a mild one tends to their increase.

I believe the reverse of this is the truth, and for this reason—in a mild winter they keep nearer on the surface, and consequently become an easy prey to blackbirds, thrushes, and starlings, which are always on the look out for them. In a hard winter, on the other hand, when the ground becomes frozen, they have no difficulty in getting down out of its reach, and the harder the frost the deeper they go, and then when the thaw comes they emerge from their hiding places, and after their long fast are ready to devour anything that comes in their way. Where Pansies are grown in pots they will require some attention now to be transferred to larger pots, and where the shoots are long small sticks should be placed to them to keep them upright; these sticks must be very slight not to spoil the appearance of the plants.

ROSES.

The winter has been a most favourable one for this queen of the garden. There has been no frost to injure them, and from all parts of the country I daily receive letters saying how well Roses are looking. Pruning will now, of course, be in full swing; it is really on the tyro who requires instruction on this point. Hybrid Perpetuals may now be pruned, and where the plants are strong growers they require less pruning than when they are weaker; in fact, the weaker the plant the harder it must be cut, and where Roses have been planted during the past autumn they must be cut hard. Teas may, of course, be left until next month. They also look well, but we must recollect that we are not out of the wood yet; we have to go through the Blackthorn winter, and the delightful weather of the past few days must not make us forget this, or that we have those terrible May frosts to dread. It may be that we may escape them, but past experience makes it doubtful.—D., Deal.

BEGONIA GLOIRE DE SCEAUX.

OF the winter-flowering section of Begonias this is decidedly one of the best and most useful, and deserves to be extensively grown in every garden where a supply of bloom is desired through the dull months of winter and early spring. With me it commenced flowering towards the end of December, and from the middle of January to the beginning of the present month it was a mass of bloom, almost entirely covering the foliage. When it would have finished blooming I cannot say, for at the last named date the flowers were removed to encourage fresh growth for propagating, as I wish to obtain as large a stock as possible. At that time it showed not the least inclination to terminate its season of flowering, and, even if no more buds had been produced, it must have continued to the end of this month, probably much longer.

The plant possesses a sturdy, upright, and compact habit of growth, and branches freely at every joint until it shows its first buds; after that it is covered with flowers. I have only one plant, but was evidently fortunate enough to hit upon the exact mode of culture it likes, and I append a few particulars of the treatment, as they may be of service to other amateurs who are growing this Begonia.

The cutting, a very small one, was obtained on April 17th of last year, and was inserted in a 2-inch pot in a propagating case in a greenhouse. When rooted through to the sides of the pot I removed the plant to a light but shaded position on a shelf near the glass at the back of my stove, where it soon commenced growing freely, but, having taken so long to root, did not require potting until the middle of July, when it was shifted into a 3½-inch pot and returned to the same quarters. On September 24th it was again shifted, this time into a 5½-inch pot, which size would be found very suitable for most purposes, and the plants can be conveniently accommodated on a shelf near the glass better than if in larger pots.

When at its best the plant was more than 2 feet high and 15 inches through at the base, forming a small pyramid-shaped mass of bright rosy flowers, which contrast admirably with the bronzy green cordate leaves of this variety.

The soil used consisted of two parts peat, two parts loam, one part leaf soil, with a fair addition of charcoal broken small, and sand. The temperature ranged from 65° to 70° at night, with a rise of 5° or 10° by day during the early stages of its growth, gradually falling to 60° at night, with a proportionate rise by day in November and December.—C. L. B.



ROSE SHOW FIXTURES FOR 1897.

- June 17th (Thursday).—Colchester and Ryde.
 „ 18th (Friday).—Portsmouth (N.R.S.).
 „ 26th (Saturday).—Windsor.
 „ 29th (Tuesday).—Canterbury, Sutton, and Westminster (R.H.S.).
 „ 30th (Wednesday).—Croydon.
 July 2nd (Friday).—Crystal Palace (N.R.S.).
 „ 7th (Wednesday).—Glasgow and Reigate.
 „ 8th (Thursday).—Bath, Gloucester, and Woodbridge.
 „ 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 „ 22nd (Thursday).—Halifax and Trentham.
 „ 27th (Tuesday).—Tibshelf.

The above are the only dates definitely fixed that have as yet reached me. I shall be glad to insert in the next list, which will be issued about the middle of April, any further fixtures that may be sent me.—
 EDWARD MAWLEY, Rosebank, Berkhamsted, Herts.

N.R.S. SOUTHERN SHOW.

LOCAL considerations having rendered any day in the Diamond Jubilee week impracticable, the date of the National Rose Society's Southern Show at Portsmouth has been changed from Wednesday, June 23rd, to Friday, June 18th.

ROSE BUDDING IN FEBRUARY.

I OFTEN get letters with questions on Rose culture, which I answer to the best of my ability; and I think the subject matter of one lately received is worthy of record. I was asked when it would be advisable to cut back the laterals of stocks budded last month (February). Budding under glass being rather unusual, as grafting is the mode generally adopted, I asked for more particulars. My correspondent—Lady Fawen of Bealings House, near Woodbridge—then informed me, to my astonishment, that the budding was done out of doors, and appeared to be quite successful. She received some Marie Van Houtte Roses by post from Nice. Though four days en route they arrived in such good condition, with such nice plump buds for working, that she was tempted to try them. Some old standard stocks were soon discovered in an orchard which were not utilised last summer, and had last year's laterals still remaining, and just (but, of course, only just, as it was February 16th) commencing to grow afresh. The bark did not rise very well, but the buds were put in, and would I come and satisfy myself as to their being thoroughly alive?

I would, and I did, on March 24th, five weeks after the budding. As far as I could see every bud had taken, most of them had swelled, two had actually commenced to grow, and the cuts were healed. I could only say I wished that every one of my Tea buds, put in last July, looked as well.

I was also shown some Scarlet Thorns which were budded instead of grafted in March on White Thorn some years ago; they were nice young trees, and the unions appeared perfectly sound. This last success—sound unions—may yet prove not to have taken place with the Tea Roses, but after all there does not seem any reason why budding should not be successful on old wood at any time as long as the sap is in full motion, and no check takes place.

The experiment has at all events been successful at present. I should not recommend it as a rule without further test, and I fancy Tea Roses have never been budded out of doors in Suffolk in the middle of February before.—W. R. RAILLEM.

ROYAL HORTICULTURAL SOCIETY.

MARCH 23RD.

SCIENTIFIC COMMITTEE.—Present: Rev. W. Dod (in the chair); Mr. Douglas, Mr. Michael, Dr. Müller, Rev. W. Wilks, Dr. Bonavia, and Rev. G. Henslow (Hon. Sec.).

Bulbs with Arrested Roots.—With reference to the samples sent to the last meeting by Mr. Atkinson, Mr. Douglas was of opinion that the treatment had perhaps not been quite advisable, for he thought that they should have been put out of doors, and not in a shed, and covered with 6 inches of cocoa-nut fibre. If, however, there was something deleterious in the compost sent for inspection, this could be at once ascertained by analysis. Such, however, would be beyond the province of the Society.

Wireworms among Carnations.—Mr. Weguelin of Torquay asks for remedies against this trouble. The suggestions of linseed cake, carrot, scooped out potatoes, as for slugs, &c., were made, but it would appear that in the present case they are too numerous for such traps, as indeed the writer admits. Gas lime was recommended as the only very efficient remedy, but it might injure the Carnations. The land having been well dressed with lime or soot shows that these ingredients are quite insufficient, though gas lime would probably have been effective.

Carnation Leaves Diseased.—Mr. Fagents of Honey Pots, Westfield,

Woking, sent some leaves with peculiar red streaks upon them. They were forwarded to Kew for further investigation.

Germination of Mushrooms.—Inquiries were made by Mr. Baker of Cobham Park as to somewhat contradictory statements in books upon this subject, as in Mr. J. Wright's "Primer of Horticulture" it is stated that it has been observed, whereas in Dr. Scott's "Flowerless Plants" (page 268), it appears to have never been seen. Mr. W. G. Smith, having been appealed to by the Secretary for his opinion, writes as follows:—"I have many times seen the spores of the Mushroom and its allies germinating. With me they have often quickly germinated on glass, and more often on moist blotting paper. The fungi must be allowed to shed their ripe spores on to the moist paper. After a day or two a damp microscopic slide must be placed upon the part of the damp paper where the spores have fallen, and it will often happen that some will be found to have germinated. I have seen the germinating examples whilst drawing the spores with a camera lucida. . . . Messrs. Wood of Wood Green managed to get spawn of the Morel (from material sent by me) to germinate and form spawn. I once exhibited before the R.H.S. examples of *Coprinus atramentarius* raised by me from spores. This species can be easily raised (and it is not very far removed from the Mushroom) from spore to perfect fungus. The time it takes is three months. I believe some of the French manufacturers of Mushroom spawn have raised Mushrooms direct from the spores. The spores of some of the allies of the Mushroom germinate readily in expressed juice of horse dung. I have many times seen them, and am not the only person who has seen them on glass."

Trametes radiceperda, Hartig.—Dr. Plowright sent a specimen of this fungus "to illustrate the mode in which it develops its hymenophore upon the roots of an affected Scotch Fir. The hymenium is resupinate. The fungus finds an entrance into the roots of living Fir trees by the extremities of the mycelian hyphae insinuating themselves between the bark scales. It rapidly extends between the living bark and wood, and soon reaches the wood itself, which it at once destroys. The mycelium can travel in the ground from tree to tree."

Barley-smut.—Dr. Plowright also sent the following communication upon the injurious effect of this fungus upon the colour of the crop. "It is only a few years ago—a very few when one looks back upon it—that our attention was drawn by Mr. J. L. Jensen of Copenhagen to the fact that there are two distinct kinds of smut upon Barley. At first there was a considerable disinclination to regard these two smuts as being due to two distinct species of *Ustilago*; but since they are not only easily distinguishable by the unaided eye, but also differ in the size and form of their spores, and as the latter have been found to germinate in a totally distinct manner, there is now no doubt about it. Our American confrères at the time repeated the protective measures suggested by Mr. Jensen, and confirmed their efficacy; but here the matter stopped, for the simple reason that the damage done by smut was trivial, and from a monetary point of view the dressing of seed Barley was a needless expense. A few days ago a circumstance came under my notice which materially alters the complexion of the case. A gentleman who is rather an extensive grower of Barley in West Norfolk drew my attention to the fact that two years ago his Barley was of an excellent colour, while it was in the stack; but when it was threshed it was so discoloured that he had to accept a very low price indeed for it. He attributed the damage in colour to the number of smutted ears which remained intact when the crop was harvested, but which, by being broken up in the process of threshing, discoloured the whole sample, just in the same way as bunted Wheat does. Fortunately he had kept some of this discoloured Barley. On inspection it looks as if it had been damaged by exposure to the weather. When a little of it, however, is shaken in a test tube with clean water the water becomes discoloured, and a drop placed under the microscope is seen to be full of *Ustilago* spores. So convinced was this gentleman of the cause of the discolouration that in the next season he dressed his seed Barley with the ordinary sulphate of copper dressing, which is used for seed Wheat for the prevention of bunt. The result was eminently satisfactory; for that year his crop was free from the disease, and the grain, of good colour, realised a proportionately good price. The ordinary *Ustilago carbo*, as it used to be called, has no detrimental effect on Barley, beyond destroying a certain percentage of plants, its spores being all blown away long before the harvest; but with the species in question, which, by the way, has received already a considerable number of names—Mr. Jensen originally called variety *tecta*—the ears retain their shape, the awns do not fall off, and the kernels are converted into solid compact masses of black spores; not so compact, however, as to withstand the concussion of the threshing machine without being disintegrated into fine powder, which becomes scattered over the healthy kernels." With this communication were received:—(1) Specimen of the compact form of Barley-smut, gathered on the 15th of last July, at which time the common Barley-smut had all disappeared from the field. (2) Three samples of Barley, two of which are discoloured by the smut, as may be shown by shaking them in water and examining the washings. (3) A sample of healthy Barley from which no spores could be washed."

A vote of thanks was unanimously given to Dr. Plowright for his interesting communications.

Portugal Laurel with Defective Foliage.—Rev. W. Wilks showed branches, one healthy for comparison, the other showing a silvery appearance. It is a well-known case, and apparently attributable to defective nutrition. The peculiarity resides in the fact that the upper epidermis becomes detached, and the presence of air gives the whitish appearance. The palisade tissue also separates readily from the mesophyll, and its cells are easily broken asunder. There is no trace of

fungi or other organism. Mr. Henslow observed that a tree in his garden exhibited the same appearance and died. Its roots were found to have penetrated pure gravel.

ROYAL HORTICULTURAL SOCIETY'S COMMITTEES' AWARDS.

YOUR correspondent of last week, "F. R. H. S.," is still unsatisfied with me, although he greatly qualifies his criticisms now. In one case he seeks to charge me with inconsistency, because I am represented to have written that I do not think the present too free making of awards *should* be restricted in the least. I did not write *should*, which would have been absurd. I wrote *would*, which alters the complexion of my assertion entirely.

Putting the Chiswick or Drill Hall meetings in comparison with the Chester and York Shows is ridiculous, and has nothing to do with the matter. My previous reply related to a statement of "F. R. H. S." that awards were relatively far more liberally made at the Temple Show than the Council made them at Chester or York. I showed wherein laid the distinction, the former being a show without prizes, while the two latter were essentially competitive shows. What on earth has the Drill Hall or Chiswick meetings to do with this comparison?—A. D.

NOTES ON VINES.

THE preparation of Vines in pots for early forcing is an operation that requires a fair amount of attention. Cut-backs of last year's raising are the best for making sturdy canes and perfecting the growth early and well. The cut-back has the advantage of a number of roots to begin with, and if grown well in the previous season so as to have short-jointed and stout canes about 4 feet in length, and not given larger pots than 6, or at most 7-inch, they will push strongly when cut down to one or two buds and placed in gentle heat in February. Such "cut-backs" will have much of the appearance shown in the illustration on page 213, March 24th, 1892, as regards the roots when turned out of the pot for the first repotting after the cane has made a little top growth, this not being more than 3 or 4 inches, and better less, as no roots will then have been made, and the soil being mostly removed no damage will be done. Straggling roots would then be shortened, and the Vine placed in a 7 or at most 8-inch pot. All that is necessary at the first potting is to provide fresh soil and get abundance of fibrous roots in it.

The Vines thus treated will now require their final potting—12-inch pots are a proper size. They should be clean and efficiently drained, potting firmly in turfy loam, with about a tenth of old mortar rubbish added. This will secure a good root formation, and any extra vigour desired can be promoted by top-dressings or liquid applications of chemical manures. Bottom heat is not necessary, but if the Vines are plunged in it for accelerating root action, it should not exceed 80° to 85°, and they must not remain in that so long that the roots enter the plunging material. The better plan is to place the pots on slates over the hot-water pipes, or in such position that the canes can be trained from the sides of the house beneath the roof, near the glass to insure the solidification of the growth.

The house should be kept rather close, and if the weather be bright shade for a few days. Syringe the Vines and otherwise damp the house, so as to secure a sturdy and clean growth. Pinch the laterals at the first joint, and subsequent growths treat similarly, stopping the leader at 6 to 8 feet, according to the length of cane desired. With proper attention the Vines will make canes like walking sticks with eyes like nuts by August, when they can be subjected to a ripening off régime, but not too suddenly, and they will be in proper trim for starting in November to afford ripe Grapes at the end of March or early in April.

Vines for planting are usually a very motley lot unless picked, and many of them as notable for the pooriness of the canes as the paucity of their roots. Albeit the pots they are in may not be much less in diameter than that usually given to fruiting canes, yet they turn out with scarcely any fibrous roots, and the amount seldom comes up to that shown outside the mass of fibrelets on the illustration above referred to. This exhibits a grand foundation of roots, abundance of fibres issuing from the base of the cane and plenty for laying in the soil, so that a good grip of the soil is had without loss of time. Indeed, it shows exactly the type a planting Vine should be, for in addition to the splendid root system there is the advantage of a stout stem with free channels for conveying the sap, and as such Vine is cut down for inside planting to a few buds near the soil it must make a sturdy growth if properly planted and attended to afterwards. It is alluded to for contrast with straw-like canes and the thin bare roots frequently comprising Vines for planting.

Planting is, perhaps, best done when the young growths have extended an inch or two, which, when the Vines have been kept cool, occurs early in April. Where provision has been made for inside and outside borders, the Vines should be planted in the former, confining the roots to it until they have well occupied the available space—in fact, a 4 to 6 feet width of border is sufficient in the first instance. The Vines should be shaken out and placed in position either before or after they have grown to the extent of a couple of inches, the roots being disentangled and spread out evenly in the border, covering them about 3 inches deep, and watering moderately to settle the soil about them.

Vines of the present year's raising will not require to be planted out for some time yet. They are preferably raised in squares of turf, and may be planted when the roots are protruding through the sides, or if in

pots they should be turned out before they become root-bound. They will require to have the temperature suitable to Vines in growth—namely, 65° at night, and 70° to 75° by day, with an advance of 10° to 15° with sun; but Vines of last year should be allowed to start unaided, syringing them two or three times a day, according to the weather.—G. ABBEY.

EARLY CINERARIAS.

ON page 251 "A." says, "Those who grow Cinerarias for very early blooming must largely force, and, of course, the plants are drawn and the blooms somewhat demoralised." This is misleading, as is well known to those who grow Cinerarias for early flowering. I have them in bloom fully a month before Christmas, which, I suppose, would be considered early, as the regular Cineraria season is not till March and April. I find Cinerarias most useful during December, January, and February, and make a special effort to have a good stock of them. I do not find that the plants are "drawn" at all, and certainly they are not forced. I grow Sutton's strain of Cinerarias, which are good in form and colour, while the habit of each plant is dwarf, but not too much so. Extreme dwarfness is a defect not to be encouraged, as such plants have a "dumpy" appearance.

For having Cinerarias in flower at Christmas, or earlier, the seed is sown during the early part of May. A long season of growth is thus afforded, which dispenses with any necessity for forcing the plants in strong heat. I make two sowings—one at the time named and another the first week in June. A regular succession of flowering plants is then assured, assuming, of course, neglect does not follow the initial stage. Any fine sandy sweet soil will suffice to sow the seed in, and well-drained pans are the best for the purpose, covering with a square of glass. To maintain the soil in a moist state a little moss over the glass will dispense with the necessity for shading the frame.

Directly the seedlings show through the soil we remove the moss, and tilt the glass on one side to admit air to keep the plants sturdy. A weakly growth cannot produce dwarf plants with robust foliage and strong heads of bloom, such as are required to be effective in a decorative point of view. The pots in which the plants are to flower range from 4½ inches to 7 inches in diameter. A compost largely composed of decayed leaves, loam, and sand suffices for the first potting. Afterwards more loam is added in the place of the leaves, with a small quantity of partly decayed horse droppings for the final shift. It is a mistake to allow the roots of Cinerarias to become matted together before they are repotted, the foliage becomes crippled, and the flower spikes are never so stiff as they ought to be; in fact, the plants always present a half-starved appearance.

The first sowing is made in a partly spent hotbed, the second in a cold frame behind a north wall. The latter affords the best site for the plants for the first four months of their growth, as the trouble of shading the frame can be dispensed with, which is a great saving of labour.

During the month of October frames or pits with a southern aspect suit the plants better, as here the growth becomes more matured than if the plants remained in their previous position, until finally removed under cover, as they must be before frost renders their removal imperative, as Cinerarias cannot withstand any frost.

For flowering the plants we erect a flat temporary stage in a large airy Peach house, which is kept as cool as possible. By the first week in November the bulk of the leaves have fallen from the trees, the Cinerarias then get plenty of light. At no time must the plants be crowded, and the leaves of one plant should only just touch those of its neighbour. Cinerarias are subject to attacks of green fly and a leaf-mining maggot, common to Celery. Frequent fumigations with tobacco smoke will rid the plants of the aphides, but hand-picking must be resorted to for ending the maggots.

Cinerarias must have abundance of water both at the roots and over their leaves during active growth, especially when the pots in which they are growing are small; stimulants frequently applied are a great aid to the plants, a little and often is the best course to pursue in feeding them. Liquid made from cow manure and soot is excellent for the purpose.—E. MOLYNEUX.

GOOD CINERARIAS.

I NOTED recently at Anningsley Park, Chertsey, an exceptionally fine strain of this useful winter and spring flowering plant. It is a selection that has been fixed by careful crossing during a considerable number of years by the gardener (Mr. Tomlin). Most colours general among Cinerarias are represented, but the indigo blue shades and self crimson and rosy hues appeared extra fine. Others with a broad white ring accompanied by various rich shades of colour were also most attractive.

The individual size of the flowers, too, was in many instances exceptional. I prefer a Cineraria pip a couple of inches or so across to one 3 inches in diameter. The latter lose that finish noted in the smaller kinds. But this is a matter of taste. Whilst improving the blossom Mr. Tomlin has had in view a not less desirable point—namely, a dwarf sturdy habit of growth.

Cultivation has, of course, much to do with the appearance of the foliage; but there is no mistaking the general sturdiness of leaf and the dwarfness of the plants in this instance. When a tolerably large greenhouse is filled with capital specimens of this nature such a collection is worth a passing notice.—H. S.

PLATYLOBIUM FORMOSUM.

LIKE many other hardwooded plants, the *Platylobiums* are not grown so extensively as they formerly were, notwithstanding their decorative merits. There, however, are several species well worthy of the attention of plant growers. When well grown *P. formosum* (fig. 62) is a most beautiful object, and will thrive well under the conditions generally assigned hardwooded plants. It is a free branching plant, and the stems are slightly hairy. The leaves are dark green above, paler below. The buds are deep crimson, and when expanded the back of the whole flower retains this colour, whilst the front side is rich orange yellow, saving a reniform belt of radiating crimson lines near the bottom of the standard. The flowers are produced during the summer.

PANSIES AND VIOLAS.

THE usefulness of Pansies and Violas for the decoration of beds and borders in spring and early summer is unquestioned. Lines of yellow, blue, and white Violas are very effective for the front rows of long borders, whether straight or curved. Plants, however, do not succeed well too near or under the branches of shrubs or trees, less because of the shaded position than to the absence of moisture in the soil, where the roots of vigorous shrubs and trees ramify and feed. It is, therefore, desirable to avoid all such unfavourable positions, choosing those which are, and will continue to be, moist, and open to frequent showers. For the same reason beds in dry poor soil, and extremely hot positions, should be avoided.

Pansies and Violas like a fairly rich and retentive soil, though one that admits of the free passage of water. Heavy soil may be well dug over and lightened with leaf soil, sand, or gritty material, containing no injurious substances. Wood ashes are an excellent addition to the soil for Pansies. As is well known, wood ashes are largely composed of mineral matter, chiefly potash. Light soils are frequently deficient in this, therefore their addition will be beneficial. The chief effect of wood ashes on heavy clayey soil will be in the mechanical effect they exert by accelerating the division of adhesive particles. Potash is naturally more abundant in heavy soil, and becomes more or less available for the wants of plants. Light soils may be further improved for Pansy culture by incorporating with them a fair quantity of well-decayed manure and leaf soil. The manure tends to hold the moisture in the soil, and with that appropriate food is readily available, while more can be obtained as required by the roots. Excess of organic matter must, however, be guarded against. Under very moist atmospheric conditions the growth which follows may be too luxuriant in foliage.

The positions intended for planting Pansies and Violas are best prepared in autumn, when the soil requires enriching with manure, and the planting deferred until spring. A further course of preparation may be adopted at the latter period, consisting of well forking over the soil, so as to make it workable for planting. It is assumed that when spring planting is carried out the plants are strong, sturdy specimens from cold frames, in which they were inserted as cuttings in the autumn. Such plants are usually freely furnished with healthy roots, having active fibres bristling all over them, hence the change to a new root run and more space is productive of rapid growth, as well as a floriferous habit.

While the plants are yet young they move readily. It is very desirable to plant early for other reasons. By removing them to their flowering quarters early in April they have time to become established in the soil before the hot weather arrives. Late planting is frequently the cause of unsatisfactory results following. Considerable care is needed in lifting and transferring them to the positions, care which is not always accorded. It is true Pansies and Violas are not so difficult as some plants to lift and replant even in May if the ground is moist and the plants not too large. The objection to allowing them to remain in the cutting beds is that they are liable to be spoiled in habit and flowering proclivities. Early planting induces the formation of bushy plants. The main stem is arrested in growth by the removal, and the fresh run for the roots gives an impetus to the production of numerous shoots from the base, which in due time flower freely.

Plant 10 inches to 1 foot apart. Sink the plants a little lower than they previously were. Keep the ground free from weeds, and occasionally stirred with the hoe. This allows warm air and moisture to enter, and is an important factor in promoting free growth. In dry weather a copious watering once a week will be beneficial, followed the next day by loosening the surface. Should the weather continue dry mulch between the plants with a mixture of decayed manure and leaf soil.

The flowering period may be prolonged by following the simple practice of cutting off the withered flowers, thus preventing the formation of seed pods. Beds of Pansies which have stood the winter unprotected require now some encouragement in order to assist growth. The whole of the space between the plants ought to be stirred, and a little soot dusted over. Work this in with the hoe, and on an early, warm, dry day give a copious watering of liquid manure made by pouring 30 gallons of water on a peck of cow or sheep manure. Frequently stir this for a week, then allow to settle, and give the clear liquid occasionally until the growth is free.

In choosing a position for planting Show and Fancy Pansies to afford blooms for exhibition, shade from the midday sun should if possible be

secured. The shade and shelter of a well-trimmed hedge is an admirable place. Except for the shade the position should be fully open to air and light, but the plants are best protected from the effects resulting from rough and windy quarters. Regular and systematic attention must be afforded to prevent the plants being crowded with growth or weeds. A loose surface ought to be kept, and the careful removal of flowers as they pass their best condition, only allowing one or two at a time to open on each shoot. The plants require to be fed with liquid or chemical manures about every ten days. Protect the best blooms when open from strong sun and heavy rain.

Violas are termed by some cultivators Tufted Pansies. This certainly describes the habit of growth of Violas generally, but it gives no idea of the differences which distinguish them from the Show and Fancy Pansies. The old term *Viola* has long been understood to mean a class of the order *Violaceæ*, having small self-coloured blooms with a distinct



FIG. 62.—PLATYLOBIUM FORMOSUM.

eye and light pencilled rays on some of the petals. Some, however, of the Violas have very large blooms, but the distinction from Pansies is usually evident.—E. D. S.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—The usual fortnightly meeting was held on Monday evening last, and was largely attended. The President, Mr. C. B. Stevens, occupied the chair. Apart from the lecture, the feature of the meeting was a presentation of a purse of gold and an album containing the names of 138 subscribers to the Honorary Secretary as an acknowledgement of services rendered to the Association. Mr. Pound warmly thanked the members for the kindness they had shown him, and for such a handsome gift, and also the President for the kind words he had spoken. Mr. Townsend, The Gardens, Sandhurst Lodge, then read his paper on Summer Bedding and Summer Flower Gardens, also the Water Garden. A beautiful collection of *Cinerarias* was sent by Messrs. Sutton & Sons, consisting of their well-known florist varieties and *Cineraria cruenta* hybrids, also specimens of *Cineraria cruenta*, the original type introduced from the Canary Islands in 1777, the object of the exhibit being to demonstrate the result of a cross made between *C. cruenta* and the flowers of the present day, thus showing one generation removed from the original. The hybrids are sweetly scented with a hawthorn perfume, and are exceedingly useful for cutting.

TREE IVIES.

THE value of the Ivy as a climbing plant is well known and undisputed. The value of tree Ivy, however, as an addition to the not over lengthy list of good constituted hardy evergreen shrubs is not so fully recognised. Everyone knows how well the strong growing varieties of climbing Ivy do under most adverse circumstances. When growing in the middle of large towns the leaves keep fresh and green where little else would exist. Very wet or very dry weather does not appear to affect them; whilst for coming unscathed through London fogs the Ivy has few equals. As the climbing Ivy shows to such advantage it is a wonder we do not see the tree forms made greater use of, as they grow freely, made good plants in a short time, and are equally effective whether grown in beds, as groups in the shrubbery, or as specimen plants.

The arborescent form of the typical *Hedera Helix* is often seen to great advantage covering the tops of old trees; other varieties, however, which have much more beautifully marked leaves, are rarely met with. Some of the best varieties for the purpose alluded to are *Hedera Helix arborescens*, *H. H. Ragneriana*, *H. H. azorica*, *H. H. amurensis*, large green-leaved, strong growing varieties; *H. H. foliis aureis*, *H. H. foliis argenteis*, golden variegated; and *H. H. Silver Queen*, silver variegated. *H. H. conglomerata* and *H. H. minima* are dwarf growing distinct varieties. The stems are very short jointed, bearing numerous small green leaves closely packed together. They quickly form nice plants, and are very suitable for planting on rockwork.

Although most of the varieties of the climbing Ivy assume the arborescent form when they get above their supports, the strongest only should be grown as shrubs. They may be kept in the tree form either by grafting on stocks of the common Irish Ivy or by rooting from cuttings. The former is the most expeditious way, the latter the better. When grafting is resorted to the stocks should have all the buds removed from the base to prevent suckering. The stocks should be established in small pots, grafted in February, and stood in a cool case, when a union will be effected in about three weeks. Cuttings should be put in in August in sandy soil in a cool frame, where they will root during winter. If cuttings or grafts are put into too much heat the growths sometimes revert to the climbing form. Whether grown from grafts or cuttings it is advisable to keep the plants in pots until they are planted out permanently. Pots 5 inches in diameter will be found a good size for the purpose. The plants should be potted firm, and loam with a little decayed manure used.—W. D.

THE QUALITY OF POTATOES.

I CONFESS I am somewhat disappointed in failing to observe any further information towards an elucidation of the phenomenon in question—if, indeed, it be in the power of anyone to give it. I have been at some trouble latterly in ascertaining from market gardeners and other growers their views and experience pertaining to the subject, but I fear with, apparently, not a conclusive result, requiring also, as it evidently does, a scientific research as well as an ordinary cultural observation, so cogently advocated by "A. D."

The result of my inquiries, in the abstract, is to the effect that the condition of the weather during the growing period of the Potato was mainly responsible for promoting the ailment in question, as evidenced by the dual extremes of the weather last season—viz., a long period of dryness, succeeded by several weeks of more or less rain during the maturing of the crops, causing "swartuberation," so that the chemical constituents of the tubers were not fully elaborated at the harvesting of the crop. In contravention of this theory, several growers are of opinion that the use of artificial manures, particularly nitrate of soda, instead of good farmyard or stable manure, is a contributory cause towards the evil in question. In illustration of this a grower at Bromsgrove, from where a large proportion of the Birmingham market supplies come, informed me that a few years ago he planted a large breadth of Potatoes on a piece of old virgin turf, but without manure of any kind, and at the earthing-up period he sowed a good sprinkling of nitrate of soda along the rows. But, unfortunately, the protracted dry weather precluded the plants from assimilating the virtues of the condiment until the presence of the autumn rains, when a vigorous growth ensued, resulting in the discolouration of the tubers when cooked in a more than ordinary degree, inasmuch that the grower has ever since eschewed the use of the nitrate, excepting for other vegetables and cereals. As regards the Potato, he now pins his faith to farmyard or stable manure only.

When questioned as to the reason why so large a percentage of cultivators patronise nitrate of soda and other artificial manures, his answer was to the effect that artificial manures are more readily obtained than stable manure; also that many growers do not care for the trouble of "loading back" from market town-made manure. Probably there is a considerable amount of truth in my deponent's asseverations, and which are so far qualified by the fact that, without exception, the best consignment of Potatoes, in regard to quality, I have purchased during the past winter from various sources is one recently procured from him, the variety being either "Bruce" or "Magnum Bonum," and it is noteworthy that the sample is of medium size, thus evidencing the absence of strong or excessive manurial stimulants in their production.

A remarkable feature presenting itself in connection with the quality of the numerous samples of Potatoes procured from several growers

during the past season, and which in regard to size and appearance were all that could be desired, was the apparent absence of any internal symptom of discolouration prior to the cooking for table use, consequently necessitating a trial of the sample before purchasing the stock. The importance of the ailment in question admits of no further demonstration here, and it certainly demands all analytical research, ranging as it also does next of importance to the Potato "murrain" itself, and probably as difficult to combat, if not more so.—W. G.

BUTCHER'S BROOM.

It would be interesting to learn if this somewhat rare and interesting indigenous evergreen sub-shrub has been known to fruit as freely in the British Isles, as it is said to do in the South of Europe. I am partly induced to ask this question at the present time from the fact of having recently seen a small quantity of its branches profusely furnished with bright red berries for sale in Birmingham market halls, and where it attracted much attention and admiration in the way of a newly introduced decorative subject there. The consignment came from the Riviera amongst some cut flowers.

The plant is a familiar acquaintance of mine, as for some years when resident near Stratford-on-Avon I had under my charge hundreds of the plants growing in the shrubberies. Excepting in one or two isolated instances berries were not produced, though flowers were freely expanded in April and May. Perhaps this generally non-fruited proclivity arose from some fertilising disability, owing either to the dioecious character of the species or to adverse climatal influences. Possibly the latter, inasmuch as I believe that in the South of England, and especially in Arundel Castle Park, where it abounds, the plants fruit pretty freely.

Altogether the various characteristics of the plant constitute it one of the most interesting and unique members of our indigenous vegetable kingdom. Its persistent foliage, or, strictly speaking, cladodes, twisted at the base, render it a conspicuous plant in any garden. Botanists assign the genus to a position among the earliest of our plants, and degenerated in character.

Reverting to the habit of the plant, I may remark that if grown for several years in one position it assumes a stunted growth from lack of nourishment required by the numerous fleshy Asparagus-like roots and shoots, indicating the necessity of occasional division and transplanting into rich soil. These conditions also apply to its congener, *Ruscus racemosus*, commonly called the Alexandrian Laurel, and which deserves extended cultivation if only for the sake of its long and graceful shoots, so admirably adapted for decorative purposes. Another species, *Ruscus androgynus*, a native of the Canary Isles, and occasionally to be found in our own country as a greenhouse plant, also lends itself to purposes similar to the last named.—G.

SPRING SHOWS.

TORQUAY.—MARCH 24TH.

THE members of the Torquay District Gardeners' Association held a most attractive exhibition on Wednesday, March 24th, in the Bath Saloons, Torquay. Both financially and artistically this was the most successful show ever held in Torquay. By arrangement with a local firm the large hall, 100 feet by 50 feet, was illuminated with the electric light, and the effect in the evening, when over 200 ornamental electroliers, standards, and brackets were lighted, was extremely beautiful. Many of the lights were placed amongst the flowers and foliage with fairy-like effect.

A select string band, organised specially for the occasion, and including the best local instrumentalists, drew large crowds in the afternoon and evening. There was a record attendance, which included Prince Albert of Belgium, who is now staying at Torquay. The show was formally opened by the Mayor, J. H. Rockhey, Esq., J.P., who was accompanied by the Mayoress, Miss Rockhey, Dr. R. Hamilton Ramsey (President of the Society), and a number of other leading residents. The Committee, Judges, and honorary exhibitors had previously lunched together.

With regard to the show itself, many present observed that they had never seen a finer spring exhibition. In the centre of the hall was arranged a large group, consisting of high Palms, surrounded by a brilliant bank of flowering plants. This was contributed by Messrs. W. Burridge & Sons and Messrs. Horn & Sons, both nurserymen, and formed an effective centrepiece. Messrs. Curtis, Sanford & Co., Limited, showed a most attractive stand. The South Devon Fruit Farm contributed a good show of fruit and vegetables. Mr. J. Snelgrove of St. Elmo, Torquay (gardener, Mr. W. Bale), exhibited a grand group of flowering and foliage plants, including many Orchids. Mr. W. B. Smale, J.P., F.R.H.S., was well represented by a showy stand of Palms, Lilliums, and Azaleas, together with a table of cut Narcissi. Messrs. R. Veitch and Son of Exeter attracted much attention with their novelties in the shape of rock plants and Cacti, which, together with their large variety of Narcissi, made up a very lovely exhibit. Messrs. Allward, Beachey, and Co, the Jadoo Fibre Company, and Mr. W. J. Godfrey of Exmouth, also had stands, the latter showing some fine new Zonal Pelargoniums.

One of the most novel features was an exhibit by the Torquay Town Council. This consisted of an imitation garden, with miniature beds laid out in turf and backed with virgin cork and subtropical plants.

The beds were filled with Hyacinths and Tulips, and the display reflected great credit upon the designer, Mr. J. B. Dyer, Corporation head gardener.

The chief prizewinners were Miss Lavers (gardener, Mr. G. Lee), who showed some grand Orchids, including *Lycaste Skinneri alba* and some magnificent specimen *Cœlogynes* and *Dendrobiums*; Dr. W. Ford Edgelow (gardener, Mr. C. R. Prowse), who was first in the miscellaneous group in form of circle: Captain W. Fane Tucker (gardener, Mr. J. Sloman), with some well grown *Narcissi* and *Hyacinths*; and Mr. P. W. Bushby (gardener, Mr. F. Peacock), who won the first prize in the table decorations with an extremely light and effective exhibit; and Mr. J. W. Kimber (gardener, Mr. F. C. Ferris). The Judges were Mr. W. Swan of Bystock, Exmouth; Mr. W. Rowland of Parker's Well House, Exeter; and Mr. T. Pender of the South Devon Fruit Farm, Mr. F. C. Smale being the Hon. Secretary.

ROYAL BOTANIC.—MARCH 31ST.

THE spring show of the Royal Botanic Society was held in Regent's Park on the above date. As a competitive exhibition it was very poor, for so far as we could see there was no competition in any class, save the one for twelve pots of *Cyclamens*. Miscellaneous exhibits from nurserymen, however, made a bright display, and were as a rule of high quality.

Mr. J. G. Mowbray, gardener to Major the Hon. H. C. Legge, Fulmer, Slough, was apparently the only exhibitor in the class for six Chinese *Primulas*, receiving the premier prize for splendidly grown specimens. Mr. W. Rumsey, Waltham Cross, was placed first for six *Roses* in pots with fairly well-flowered plants. For twelve *Cyclamens* the St. George's Nursery Co., Hanwell, secured the chief award. The plants were admirably grown, and carrying fine flowers and good foliage. Messrs. Petridge, Brentford, were a fair second.

The *Hyacinths* staged by Messrs. Morle & Co., Finchley Road, in the class for twelve, distinct, and for which the first prize was awarded, were barely of average merit. For twelve *Amaryllis* Mr. H. Perkins, gardener to the Hon. W. F. D. Smith, Henley, was first.

Though competitive exhibits were very meagre, collections staged by the various nurserymen were numerous and of high quality. Messrs. Barr & Son, Covent Garden, staged *Narcissi* from their Ditton Nurseries. Amongst others were noted *Duchess of Westminster*, *bicolor Victoria*, *Barri conspicuus*, *Emperor*, and others. The same firm sent *Tulips*, *Fritillarias*, *Primulas*, and *Muscari*. Mr. R. Scott, gardener to C. Newington, Esq., The Holme, Regent's Park, arranged handsome flowering and foliage plants that made a bright display.

The St. George's Nursery Co., Hanwell, exhibited a large number of *Cyclamens*, as did Mr. Petridge, Brentford. Splendid *Camellias* in pots came from Messrs. Wm. Paul & Son, Waltham Cross. Such varieties as *The Duchess*, *alba plena*, *Cup of Beauty*, *Duchess of Teck*, and *Beauty of Waltham* were very conspicuous. *Azaleas* formed the major portion of the exhibit from Messrs. J. Peed & Sons, Norwood, though *Boronias*, *Ferns*, *Prunus*, *Palms*, and others were included.

Messrs. J. Laing & Sons, Forest Hill, exhibited miscellaneous plants of fine quality. There were *Crimson Rambler Roses*, *Clivias*, *Anthuriums*, *Crotons*, *Ferns*, *Caladiums*, and various *Orchids*, with some plants of the yellow *Calla Pentlandi*. *Magnolias*, *Clivias*, *Crimson Rambler Roses*, *Boronias*, *Acacias*, and *Ericas*, with *Ferns*, came from Messrs. W. Cutbush & Son, Highgate. Superb *Amaryllis* were sent by Messrs. J. Veitch & Sons, Ltd., Chelsea, also a few *Orchids* and a collection of *Daffodils* and blue *Primroses*. The *Emperor*, *Empress*, *Glory of Leyden*, and *Barri conspicuus*, *Narcissi* in this group were very rich in colour, as were the several others not noted. Mr. G. Mount of Canterbury staged cut *Roses* in his customary excellent style, while Mr. W. Rumsey, Waltham Cross, sent plants in pots.

PARIS GREEN FOR THE CABBAGE CATERPILLAR. — An agricultural paper of high character states that we may freely use Paris green on the Cabbage in order to destroy the Cabbage caterpillar. It states that the ordinary solutions of Paris green do not contain enough poison to injure anyone; but the danger would be that the solution would sometimes be made much stronger than was desirable, and there can be no doubt there would be many fatal cases if Paris green should become general in this case. The use of Paris green should be strongly objected to in the case of any vegetable, like the Cabbage, which retains within its closed leaves whatever may be cast upon it. In cases where the poison can be easily washed off by the rains, there would not be the same objection. — ("Meehan's Monthly.")

IRIS JAPONICA — This beautiful *Iris*, says a writer in an American contemporary, which has been in cultivation nearly a century, ought to be in every collection of cool greenhouse plants. It belongs to the rhizomatous section of the genus, and is perhaps better known as *I. fimbriata*. The bright green sword-shaped leaves are from 1 foot to 18 inches in length, gradually tapering to a point, and are arranged in fan-like tufts, making an elegant plant even when not in bloom. The pale lilac or bluish flowers are 3 inches in diameter, and beautifully fringed. The reflexed falls are a rich orange-yellow at the throat. The individual flowers are fugitive, but they succeed each other until each spathe has produced three or four. The plant blooms better when allowed to become pot-bound. My experience has been that it is best not to attempt to divide the roots until this is absolutely necessary, as the plant will not blossom till the second season after division.

THE YOUNG GARDENERS' DOMAIN.

FREESIAS.

THESE delightful winter and spring-flowering bulbous plants are not so extensively grown as they deserve to be. They are of easy culture, and the deliciously scented flowers are produced with great freedom under good cultivation. A compost of two parts loam, one of leaf mould, with a small quantity of silver sand, and half a part of decayed manure, will be found suitable for these plants.

We use 4-inch pots, well drained and clean, with a layer of moss placed over the drainage to keep it clear. Six bulbs are usually inserted in each pot about September, and plunged in cold frames up to the rims of the pots. When starting into growth they may be removed and placed in a position near the glass. A few pots at a time placed in a gentle heat of 45° to 50° at short intervals produce a succession of flowers from Christmas until March, or even later.

As soon as the plants are large enough to tie they should have a thin stake put to each growth. Some good artificial or weak liquid manure may be given at intervals of about a week, which will prove beneficial to the flowers, and an occasional watering of clear soot water may also be given to impart colour to the foliage.

Freesias are less subject to insects than most plants, although red spider, thrips, and green fly will sometimes attack them. These troublesome pests may be eradicated by syringing with the XL All liquid insecticide, mixed according to the directions given. These plants are admirably adapted for either house, table, or conservatory decoration, producing a pretty effect by their arching flower spikes, and the individual flowers are also useful for buttonholes, sprays, and bouquets, as they wire well, and are the right colour for that purpose.

After flowering they may be placed closely together in cold frames, and watered regularly until the foliage shows signs of maturation, when water should be gradually withheld until the soil becomes quite dry; they should be fully exposed to the sun, so as to well ripen the bulbs. — J. F. D.

POTTING FREESIAS.

IN your issue of the 25th ult., in "The Young Gardeners' Domain," the writer on *Freesias* says, in potting the bulbs, twenty should be placed in a 32-pot to get a mass of foliage and flowers. I should think he would get too much of a mass. We find that ten to twelve are sufficient for that size of pot. — WORPLESDON.

FUCHSIAS.

EXCEPT for the production of cuttings I do not advise keeping old plants of *Fuchsias*. Specimens 4 feet in height and 2 feet in diameter can be obtained in one season if the proper treatment be afforded them. The cuttings should be taken when about 2½ inches long in the month of February from old plants previously started in heat. Placed in small pots and plunged in a brisk bottom heat with an atmosphere freely charged with moisture the cuttings will root in about a fortnight. When rooted, and before the roots become matted together, pot singly in 3-inch pots, using a mixture of three parts loam, two parts leaf soil, and one part sand, thoroughly well mixed, returning them to the plunging material for a few days. When the roots have taken hold of the fresh soil remove the plants to a position on a shelf near the glass in the same structure, where they will have plenty of light and are within easy reach of the syringe. Do not top the leader, for if given room enough plenty of shoots will be produced from the axils of the leaves to furnish the plant. The great secret is to keep the plants moving until the required dimensions are obtained. Heat and moisture with ample space are essential to the well-doing of the *Fuchsia* during the growing season.

About the end of July the plants should have grown to their fullest extent (being probably in 12-inch pots), when they should have more air. About the end of August they can be safely removed to a position out of doors on a bed of coal ashes, where they will receive the full benefit of the sun in order to ripen the wood. During their brief stay out of doors no pains must be spared in keeping the plants well supplied with water both at the root and also overhead with the syringe, giving the plants an occasional twist round to insure the thorough ripening of the wood on all sides, and to prevent their rooting into the ashes on which they are placed. When the wood is of a light brown tint transfer the plants to an airy structure, and continue syringing until the flower buds appear, when it should be discontinued. The application of weak liquid manure will assist the plants after they have become root-bound. *Fuchsias* should not be tied more than is absolutely necessary, otherwise their pendent and graceful habit cannot be appreciated. — YOUNGSTER.

SALVIAS.

FOR conservatories and greenhouses *Salvias* form an excellent succession to *Chrysanthemums*, and by growing three or four varieties *Salvias* can be had in flower from early in December till the middle of April. Give the plants the same care as we give to *Chrysanthemums*, and it will be a cause of astonishment to all who see them why such plants are not more grown, and why we do not treat them better during the summer than planting them out in some remote corner and letting them grow as best they can; many following this practice, and like most neglected plants, the return is small. Could we always bear in mind that what is worth doing is worth doing well, many partial failures would be unknown.

The four most useful *Salvias* are *S. gesneræflora*, *S. Heeri*, *S. splendens*, and its dwarfier variety *S. Bruanti*, which is a lovely variety, brilliant in

colour and dwarf in habit, requiring the same treatment, and flowering the same time as *splendens*. Their culture is easy. Take cuttings in March, and insert several in a pot, according to the size used, place in a close case, and if there is a slight bottom heat they will root the more quickly. When rooted potted singly, and inure the plants so that they experience no check when placed on a greenhouse shelf near the glass, or better, in a heated pit till the end of April. They must have plenty of air and light, or they become drawn and weak. Repot and arrange them in a cold frame during May; after the first week of June they may be placed outside, shifting as they require till established in their flowering pots, which may be 12 inches in diameter, during July. Compost—loam seven parts; horse droppings, prepared as for a Mushroom bed, one part; half a part of wood ashes, and a dusting of bone-meal. Pot firmly, and assign the plants an open position, to induce short and stocky growth.

They will require frequent topping till the end of August to form compact and bushy plants. *Salvia splendens* is the first to flower, opening during December, when its brilliancy will make the houses gay during the dark days about Christmas. It requires careful staking and a sheltered spot, as when grown strongly it is very brittle. On this account some persons grow the plants in cool houses all the year, which I consider unnecessary. *Salvia Heeri* is the next to bloom, opening in January and early February. It is not so nice a grower as either *S. gesneriflora* or *S. splendens*, being taller and longer jointed. *Salvia gesneriflora* flowers during March and on into April.

The varieties mentioned flower over a period of four months, and are the best I know for winter flowering. *S. splendens* can almost be had in bloom at any time through early or late propagation. As to watering, do not give them too much—they may be kept drier than *Chrysanthemums*—and do not overfeed them with manures, as rank growth is not desired.—W. T., Ireland.

CONSERVATORY MANAGEMENT.

THE conservatory will next (October) be ready for the reception of the *Chrysanthemums*. About the culture of these plants I shall have little to say at present. In the arrangement of them it is better not to mix the varieties of incurved and Japanese together. A better effect is produced if they are grouped separately. *Chrysanthemums* grown in small pots are very useful for edging. For this purpose cuttings may be taken in June or July from plants which have been planted in a border for lifting in the autumn; 5-inch pots are very suitable. Insert seven or eight cuttings in each pot, using a light compost. Place them in a frame, which should be kept close, and shaded in sunny weather. Slightly damp them morning and afternoon. When the cuttings are rooted they may be taken out, and the pots stood thinly on ashes. Do not allow the plants to become dry, or the leaves will turn yellow. Afford liberal supplies of liquid manure when the pots are well filled with roots. By the end of October they will be nice serviceable bushes about 1 foot in height. *Sœur Melaine*, *Rosinante*, *Nellie Rainford*, *Précocité*, *St. Michael*, and *Elise Dordan* all flower well under this treatment.

During the time the *Chrysanthemums* are in flower as little heat as possible, consistent with safety from frost or damping, will be needed. With good management the blooms will be attractive all through November, and a few late sorts will prolong the display well into December. By this time, cuttings having been already taken, the plants may be removed. With the departure of the *Chrysanthemums*, we come again to the *Camellias*, *Cytisus*, and *Heaths*. These will not yet be in full bloom, but the house may be enriched by the addition of *Poinsettias*, which stand remarkably well. Their scarlet bracts make quite a brilliant display, intermixed with the *Cytisus*. The advent of the new year completes the twelve months round of conservatory management.

In giving the names of the various plants which I have mentioned, I have not done so with the intention of excluding others, which may be equally as serviceable. My main point has been to name collections which will closely succeed each other in flowering, and form the nucleus of the display in their respective seasons. I should, however, exclude the common *Geraniums* (*Zonal Pelargoniums*), with which many conservatories appear to be furnished almost all the year round. I do not favour the introduction of these plants, handsome though they be, excepting in the late months of the year. The flower garden is a more suitable place for them in the summer, and one great object in conservatory management should be to provide a display in the summer entirely distinct from the flower garden, or the house will lose half its significance.

Of the general work in connection with the conservatory a little remains to be said. All plants ought to be thoroughly cleaned before being removed to it. Any that need should be neatly staked and tied, also the pots washed. Each morning all dead leaves and flowers should be picked off, the floor brushed over, afterwards watering the plants. Do not allow pools of water to remain on the floor, but have a pail and cloth handy with which to dry it. Whoever is in charge should complete this work as the first of each day.

In the foregoing I do not claim to have presented to the reader an ideal conservatory. At the same time, I confidently believe (judging from the knowledge gained during my own short experience) that if a house is managed in a somewhat similar manner to what I have attempted to describe the result will be a gay conservatory all the year round, and a source of pleasure to all concerned.—P. W.

[A very well written and creditable series of articles.]



FRUIT FORCING.

Cucumbers.—As the sun heightens, and the light and heat correspondingly increase, attention must be given to needful shading and due supplies of moisture in the atmosphere and at the roots. Flagging must not be allowed whether it arise from exposure to too powerful sun or a deficiency of moisture, as it gives a check highly prejudicial to the plants at the time and cripples them in their after growth, therefore light shading at this time of year is often desirable for a couple of hours at midday when the sun is powerful. Damp the floors and other surfaces in the morning and evening, and syringe the plants lightly and both ways on fine afternoons.

Plants in bearing will need liquid manure once or twice a week, and the roots earthing occasionally. There is nothing like fresh sweet material, such as turfy loam laid up till the grass is killed, with one-third of horse droppings prepared as for Mushroom beds, for encouraging the growth of roots, and with plenty of these the plants can be fed to any extent, there being few stimulants that act more in favour of Cucumbers for quickness, clearness, and greenness than nitrate of soda, half an ounce being used per gallon of water, and all the waterings supplied in a tepid state, always as warm as the bed. Other food of a sustaining nature must also be afforded. Where stable drainings are obtainable they may be used with advantage, neat being diluted with five or six times the bulk of water, care being taken not to apply it too strong. If horse droppings are used as a mulch they must be well sweetened before being introduced to the house, or the ammonia will injure the foliage. Worms sometimes become troublesome, and are best expelled by placing a peck of freshly burned lime in 30 gallons of water, allowing it to stand two or three days after stirring well, then using the clear lime water, or a peck of soot to 70 gallons of water. The lime acts well on organic matter and all *vermes*, including eelworms, as well as on organic matter, and the soot is a good fertiliser, putting plenty of colour into the fruit; but the clear only should be used, letting stand forty-eight hours after stirring and drowning the soot. Canker in the stems may be subdued by rubbing quicklime into the affected parts, repeating as necessary, and avoid wetting the stems.

Attend to stopping and tying the growths not less frequently than once a week, cutting out exhausted growths and encouraging young bearing shoots. To keep the plants in steady progress and secure straight, clean, tender, crisp, well-flavoured fruit a temperature of 65° to 70° at night, 70° to 75° by day artificially, 80° to 85° with sun, closing sufficiently early to run up to 90° to 100°, with abundance of atmospheric moisture will be suitable. Ventilate early but moderately, avoiding sudden changes of temperature, pernicious cutting winds, and currents of cold air, which cripple the foliage and deform the fruit.

In pits and frames the necessary heat should be maintained by lining the beds, renewing as required, taking care to avoid rank steam inside the frames. Train the growths rather thinly, and stop them one or two joints beyond the show for fruit. Supply fresh warmed soil to the hillocks or ridges as the roots extend, and be careful that the application of water is not excessive. Admit a little air early so as to dry the foliage before the sun acts powerfully upon it. Keep the temperature through the day at 80° to 90° from sun, and close early in the afternoon, no harm accruing if the temperature rise to 90° to 95° provided there is no rank steam.

Figs.—*Earliest Forced Trees in Pots.*—Early Violet and St. John's, very early small fruited varieties, are advanced towards ripening, and the foliage must be kept dry as soon as the fruits show signs of changing. Less water must also be given at the roots, and liquid manure need not be applied, as too liberal feeding in the ripening stages prejudices the quality of the Figs. Water, however, should be furnished to the roots so as to maintain the foliage in health. Trees swelling their fruits need full supplies of water and liquid manure until ripening commences, when a circulation of warm air will be necessary to secure well-ripened high quality fruit. The temperature will need to be maintained at 60° to 65° at night, 70° to 75° by day from fire heat, 80° to 85° with sun, admitting air or increasing it from 75°, closing the house early so as to advance to 90° or more.

Planted-out Trees.—Such Fig trees are often unsatisfactory, growing very often too luxuriantly, and are frequently trained to walls at a considerable distance from the glass, so that they produce wood instead of fruit. This can only be overcome by lifting and restricting the roots, and training the growths thinly. They cannot be too near the glass, provided they do not touch. When the foliage has abundance of light, and the roots are plentiful and active in borders of limited area the trees require liberal feeding. This is easily effected through the surface roots, which are encouraged by a mulching of partially decayed manure, preferably lumpy, and if kept moist will be permeated with roots by the time the most support is needed to perfect the crop. Fig trees will take almost any amount of liquid manure without prejudice to the crop, and it is astonishing what heavy crops the trees will carry with the roots confined to narrow borders.

Melons.—Stout leathery leaves, short-jointed growths, usually produce heavy high-flavoured fruit; thin foliage and long-jointed wood produce the exact opposite, solidification being essential to fertility. No effort should be spared to get fruit set on the first laterals. When in flower and during the setting period water should only be given to prevent flagging, and the atmosphere must be kept dryer, with an increase of temperature of about 5°, a circulation of warm air conducting to a good set, and if necessary a little air should be admitted at night to prevent the deposition of moisture on the flowers. Fertilise the blossoms every day, pinching each growth at the same time one joint beyond the fruit. When the fruits are set and about the size of a hen's egg give a thorough watering with tepid liquid manure, having the soil for earthing the roots warmed, for if the roots are chilled by cold water or soil the fruits turn yellow instead of swelling. In a day or two after watering top-dress with rich, turfy, rather strong loam, pressing it down somewhat firmly, and again supply water. Stop the subsequent growths to one or two leaves, and avoid overcrowding the foliage by removing superfluous growths. The bottom heat should be kept steady at 80° to 85°, this assists the swelling of the fruits, and speedy growth with early ripening is a great point in growing the first crop of Melons. The night temperature may stand at 65° to 70°, 70° to 75° by day from artificial means, ventilating from that point, but allowing an advance to 85° or 90°, closing at 85° sufficiently early to rise to 90° or 100°.

Syringe moderately about 3 P.M. on bright and warm afternoons, or soon after midday when the air is sharp. Damp the floor in the morning, and keep the evaporation troughs charged with liquid manure, or failing these sprinkle the floor with stable drainings diluted with five times the bulk of water, unless sufficiently diluted by washings running into the tank. Liquid manure will be needed by plants in restricted borders; and a mulching of rather lumpy and sweet manure encourages roots, and affords support. Water, liquid manure, and mulching must always be applied equal to or in advance of the temperature of the house.

Later plants will need the growths trained regularly, removing the laterals on the stem to the trellis, then rubbing off every alternate one directly they are perceived, leaving the rest on the right and left of the main stem, pinching the point out of the primary stem after it has extended two-thirds of the required distance. Increase the supply of water as the days lengthen, but avoid making the soil too wet, as that hinders root action, and secure a genial condition of the atmosphere by damping in the morning and lightly syringing on fine afternoons.

Sow seeds to raise plants for occupying small houses or pits as they become cleared of bedding plants, keeping the plants sturdy by growing near the glass, and not allowing them to become very much root-bound. In pits and frames a bottom heat of 80° should be maintained that are growing freely; newly made beds will have a bottom heat of 90°, which is safe for planting out, and as the heat declines it can be increased by renewing the linings, employing thick night coverings over the lights.

PLANT HOUSES.

Azaleas.—As these go out of flower pick off the seed pods, and place the plants where they can be assisted by gentle heat and moisture to make their growth. Those which flowered early and have started into growth may be repotted if they need it. We have found loam and leaf mould in equal proportions with the addition of coarse sand as good as peat for growing Azaleas. The soil should be pressed firmly, so that water will not pass through, the new and leave the old balls of soil dry. Plants required for late flowering should, if practicable, be placed in a house with a north aspect. Careful watering is essential, and the syringe may also be used freely to keep thrips in check; if any are seen the best method of destroying them is a thorough application of weak tobacco water.

Erica hyemalis.—If the plants are not repotted the work should be done at once. Do not give them a large shift, and use peat and sand as a compost. In potting do not disturb the roots further than is necessary in the removal of the drainage. If the new soil is pressed firmly the roots will soon take possession of it. Where convenient place the plants in a frame, where they can stand on a base of ashes and be safe from frost. The plants may be syringed early on fine afternoons and the frame closed.

Camellias.—Those which have flowered may be kept close and warm to promote free growth. They enjoy much water at the roots, and the syringe should be used freely. While growing these plants are benefited by shade, which should be gradually removed, so that they can be fully exposed by the time the foliage is developed. This is necessary to ripen the wood and the production of buds. Plants that need repotting will grow freely in good fibry loam, with one-seventh of cow manure and sand. Those in large pots and tubs may be top-dressed with rich material, while those planted out if they are weakly may be supplied with stimulants.

Greenhouse Rhododendrons.—These may be kept with Camellias during the period of growth, and then fully exposed to the sun. The way in which they flower another year entirely depends upon the amount of light and sunshine they receive during the growing season. Any plants that need larger pots should be afforded them when flowering ceases. R. Gibsoni and Princess Royal are excellent for planting out to cover a wall, and when established they flower profusely. The latter has been furnishing flowers since last October. For shallow glasses and table decoration the flowers are invaluable. The plants grow well in peat and sand.

Daphne indica.—These plants are frequently destroyed by trying to push them forward in a close atmosphere. After they have flowered place them in frames where they will enjoy a cool base and plenty of air. Apply water carefully, but do not allow them to become dry.

Epacris.—Cut back all that have done flowering, and keep them slightly closer until they break into growth, when they may be repotted if they need it. Careful watering for some time is necessary after repotting until the plants are rooting freely in the new soil. Those that were potted some time ago and now growing freely should have plenty of air, so that a firm but sturdy growth will be made.

THE BEE-KEEPER.

LARGE HIVES.

I AGREE with "G. H." (page 240) when he states "that large hives need less attention as to feeding," but he does not say why this is so. It is, however, a fact well known to the majority of bee-keepers who have studied the question that bees will not store a surplus in supers until the brood nest or body of the hive is filled with bees, brood, and honey. If the hive is larger than is necessary by the time this takes place the honey flow will be nearly if not quite over, and little surplus will be stored in supers. This may be quite satisfactory from the bees' point of view, but is not to be recommended to bee-keepers who are anxious to make a profit and obtain a superior sample of honey from their bees.

It must have been a hive similar to the above that "G. H." had in mind when he stated in a previous issue that "if we want to take as much surplus as 250 lbs. and leave 100 lbs. for stores we must go in for larger hives." I fail to see where the advantage to the bee-keeper comes in, except it is in the saving of a little labour in feeding the bees for winter after the honey flow is over. This is really such a simple operation with a rapid feeder that it is not worth taking into consideration.

Our seasons are too short and the weather too precarious for bee-keepers to depend on extra-sized hives if their only recommendation is that of holding a large amount of stores in the brood nest. I am not prejudiced in favour or against any frame or hive, knowing full well that it is quite immaterial to one who understands their management, for in the latter word lies the whole secret of successful bee-keeping. Practical experience has taught me that a medium sized hive in this uncertain climate (taking one season with the other) is better than large unwieldy hives.

At the present moment I have some large hives stocked with bees that would probably gladden the heart of "G. H." They were not fed last autumn, or if they were only a small quantity of syrup was given to each, as they had plenty of natural stores, and are now in good condition, being as good as any in my apiary.

These stocks are always worked for sections, and so are some of my hives holding ten frames, standing side by side. The latter for this purpose have never any extra bees given to them, as they are supered when they require it, and the crates of sections are placed one above the other. Treated in this manner I have invariably found them to give better results than the extra large hives. It is honey in supers, not in the brood chamber, that the majority of bee-keepers require.

Whether the hives be large, small, or medium-sized, a bee-keeper is wise to keep to the size that answers best in his district. Frames, too, should always be of the same dimensions, whether large or small, throughout the apiary, as this adds very considerably to the pleasures of bee-keeping.

EXAMINATION OF STOCKS.

During a spell of fine weather lately all stocks in my apiary were examined. This was the first thorough overhauling they have had since last autumn. With the exception of some colonies of bees that were driven from straw skeps late last autumn they are in good condition. The latter were found to be short of stores. But on the whole they are not as strong as they have been during the past two years at this season.

Breeding was going on apace, and in some of the strongest stocks bees were found distributed over all the frames (it being the middle of a fine day) cleaning them and getting them in readiness for their future requirements. An ordinary observer looking in when the quilt was first lifted would think the hive was full of bees, but such was not the case, as during the cold nights which followed they would cluster over the brood on four or five frames only. The night temperature was much too low in my apiary for the bees to be "fanning at the entrance at nine o'clock in the evening," as mentioned by "G. H." on February 20th, as on that

date the maximum temperature was 50° and the minimum temperature 45°, with high wind and rain in the evening.

Judging from the condition of my own bees and others in the neighbourhood the past winter cannot be classed as a good one for bees, owing to the excessive rainfall of the past six months. More favourable weather may now be expected; the brood nest will then expand, and bees will increase at a rapid rate.

DRONES IN HIVE.

Although these cannot be dispensed with later in the season they are not required as early as the first week in March, as mentioned by a correspondent, page 240. When drones are observed in hives, either very early or late in the season, there is usually a cause for it, and in the majority of cases the stock is queenless, or the queen is old, or through various causes her ovipositing powers are on the wane. The workers are the first to detect this; if it happen in the autumn the drones are not killed off, and if the stock is queenless the bees will gradually dwindle away, until the few remaining drones and workers are found dead in their hive the following spring. But when the queen has lived throughout the winter and succumbed after laying a few eggs the following spring, from which a few drones will invariably be raised, the same thing will happen if the queen is old and worn out.

I have had a practical illustration of this within the past few days. On lifting the quilt from one of my hives I saw a solitary drone cell with the grub well advanced. I was at once convinced something was wrong with the queen, and on examining the stock found her dead in the hive, although there were plenty of bees and brood in various stages of development. — AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

J. Backhouse & Son, York.—*Alpine and Perennial Plants.*
Barr & Sons, King Street, Covent Garden.—*Hardy Perennials and Alpines.*
C. Clark & Co., 20, Great St. Helens, London.—*Postite—Eclair Sprayers.*
A. Findlay, Markinch.—*Potatoes.*
J. Laing & Sons, Forest Hill.—*Clivias.*
Vilmorin, Andrieux et Cie, 4, Quai de la Megisserie, Paris.—*Tree Seeds.*



•• All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed to members of the staff after remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Spawning of Toads (*W. P., Wilts.*).—Toads visit the water in March or April, their breeding season, for the purpose of depositing their eggs. Damp places are absolutely necessary for breeding purposes, even in the case of the dry land or common toad (*Bufo vulgaris*).

Tulips "Blind" (*J. A., York*).—The Tulips are quite clear in the bulb, and have abundance of white, remarkably healthy roots, nothing whatever being amiss there, while the leaves are large, deep green, perfect pictures of health; the stem also short and stout, but, as you say, "blind." The flower bud never appears to have been much larger than a pea, hence we consider the failure due to the imperfect formation of the flower bud in embryo, or what is generally termed unripeness of the bulbs. You ask, "Is it through any fault in the cultivation?" Certainly not, as regards the bringing of them into flower, for no one can place flower buds in "blind" bulbs, and that appears to have been the fault. The buds, however, have the mycelium of a fungus (*Botrytis galanthina*, the conidial condition of *Sclerotinia bulbosum*) in them, but we do not consider this to have been the cause, but rather the consequence of the "deaf" flower bud and its decay.

Discoloured Tomato Leaves (*F. L.*).—The specimens shall be microscopically examined as you desire. They did not reach us in time for this to be done and the results published in the current issue.

Swollen Peach Roots (*J. L.*).—Your letter, with Mr. Abbey's reply on the subject, we expect to publish in our next issue. Our diligent searcher and experimenter has not only discovered the cause of the swellings, but another, what we may term "miticide."

Spiræas with Dead Flower Stems (*A. Boyling*).—The stems are browned and dead from the top of the should-have-been panicle to a little below, and have the appearance of having had the part destroyed by some grub burrowing in the stem and eating out the pith, as some are hollow, and where not hollow brown as if permeated and killed by some fungus. We could not, however, detect either, therefore can only account for the flowering stems dying through the plants being brought on too rapidly, the temperature being too high and the plants at too great a distance from the glass. We have had similar, and were unable to account for their condition in any other way. Indeed, plants of the same batches in a vinery were complete failures and others in a Peach house flowered splendidly, the difference in temperature being 10° to 15°, and the amount of light and air about twice as much in the latter as former structure. This—forcing too rapidly—we consider at least one cause of failure, the plants having run to leaves and impoverished the flowering parts.

Yellow Spots and Blotches on Tomato Leaves (*W. J. H.*).—The yellow parts of the leaflets are traversed by the mycelium of some fungus which has abstracted the substance and caused a slight depression, but we cannot detect any outgrowths, or only one, and that appears to be the stalk or conidiophore of the smother fungus (*Botrytis cinerea sclerotiphila*), the conidial condition of *Sclerotinia sclerotiorum*, *Mass.* The fungus ultimately forms a mould on the dead tissue, and amid the small externally black sclerotia, once called *Sclerotium durum*, from which spring the conidial stage again, the *Pezizæ* being produced by the final stage, which forms a smother mould on the roots and stems of Potato, Cabbage, Beet, and Turnips, the conidial condition being suppressed. There is one of the spores (conidia) on a hair and pushing a germ-tube. You have done well to burn the infested plants, for it is the most malignant of the Tomato fungi, and in the conidial stage has swept off whole fields of Turnips in the North of England, where it was very prevalent last year. It cannot live in a dry atmosphere, being essentially a damp-loving fungus, as also is the species *B. cinerea*, sometimes found on Vines in vineries, turning the leaves yellow and then brown in places as if scorched. Afford plenty of air, and do not over-water, then the parasite cannot make much headway, as it must have a close moist atmosphere and a succulent plant to thrive on. By plenty of air we mean that atmospheric condition essential to a sturdy, short-jointed, fruitful growth. To prevent further mischief you might use some fungicide in powder, such as anti-blight, fostite, and other preparations of sulphate of copper, a very light dusting being all that is necessary. But hardness of tissue in the plants is of the first importance, together with removing the spotted leaves promptly.

Insect on Apple Twig (*Kentish Gardener*).—The ring-like band on the Apple tree shoot is that formed by the lackey moth (*Bombyx neustria*) in depositing its eggs, which are laid in the late summer or autumn of the year preceding that in which the attack of the caterpillars takes place. The eggs are arranged around the twig in regular order. When the caterpillars hatch they at once spin a web over the nest or shoot on which the egg-band has been placed, so that they have a snug shelter. There had been nearly 200 in your specimen. The caterpillars are black when hatched, and have an enormous head for their size. They cast their skins several times, and at last come out, so to say, in full dress, and are styled "livery" caterpillars. This is about mid-summer, when they are about 1½ inch long, and have abundance of hairs some a quarter inch in length. The ground colour of the body is a bluish grey, and there are two black eye-like spots on the head, three orange or scarlet stripes along each side of the body, and between the two lowest of these a blue stripe, the whole set off by lines of black or black spotted with blue. They then scatter themselves separately, spin cocoons, become brown pupa, and towards the end of summer the moths emerge, resting by day, and active at night. In the matter of destroying the pest there have been various expedients, such as crushing the eggs with the back of a knife, waiting until the webs are seen, then cutting the twig or shoots through, and destroying the web-nests—a bad French plan. As the caterpillars hatch out about the vernal equinox they may be destroyed easily when tender with any approved insecticide; even the eggs can be "cooked" by spraying with the Coates' solution of caustic soda, 98 per cent., and commercial potash or pearlash, half a pound each to 6 gallons of water, using hot (120° to 130°), in March, or before the buds start growing. That is the best plan. If the buds are swelling before the caterpillars are noticed hatching spray or syringe the trees with a solution of softsoap and petroleum made as follows:—Softsoap, 1½ lb.; petroleum, 1 pint; water, 10 gallons. Dissolve the softsoap in a gallon of the water by boiling, and when dissolved remove from the fire for safety, then add the petroleum, stir briskly till thoroughly amalgamated, add the remainder of the hot water, mix well, and use when cooled to 90° or 100°, coating every part of the trees. This will kill all the young caterpillars it reaches, as well as other pests. If any caterpillars escape spray the trees with Paris green, 1 oz. to 20 gallons of water, or add half an ounce (in paste) to the petroleum and softsoap solution, and thus make an end of the chief Apple tree enemies. Spraying is much more economical than syringing, also more effectual.

Anti-blight Powder (Faithful).—The particular kind used by Mr. Fenn for dusting Potatoes and Tomatoes was Tait and Buchanan's, supplied by Messrs. Barr & Sugden, 12, King Street, Covent Garden, who will send you a leaflet showing the bellows on application. Lists of Vermorel's appliances for the same purpose can be obtained from Messrs. Charles Clark & Co., 20, Great St. Helens, London, E.C. They have been advertised in the Journal.

Chemical Manures for Potatoes (H. F.).—You have not done wrong in applying the kainit broadcast. The superphosphate you may spread in the drills with the sets, a large handful over a length of 7 or 8 yards. The nitrate of soda will be more economically used as a top-dressing immediately the plants are ready for the first hoeing, a handful over a length of 14 or 15 yards—not on the plants nor close round the stems, but evenly scattered on the soil between them. The more finely the substance is crushed the better. Replies to correspondents are published as soon as possible, but many do not reach us in time for answering in the current issue, as in this case. To make sure of immediate replies your questions should reach us on Saturdays.

Anemone fulgens Unsatisfactory (P. J. P.).—There is nothing the matter with the roots, and though the leaves are more or less withered there is not any parasite on them. Probably the plants get too much sun, and are too dry in summer on the south border to store sufficient matter for satisfactory flowering. We have found them thrive best in the half shade of trees in front of a shrubbery, the situation not being dry, but moist, and the soil a good loam. We have also had them very fine in borders shaded from midday sun in summer, and gorgeous in the spring on the moist parts of rockwork. The soil should be of a rather sandy nature, enriched with leaf mould or thoroughly decayed manure. The Apple is Shepherd's Fame, an old orchard variety, not generally grown.

Names of Fruits.—Notice.—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. They should be sent on the first indication of change towards ripening. Dessert Pears cannot be named in a hard green state. (S. S.).—1, Catillac; 2, Easter Beurré; 3, Ashmead's Kernel. (A. U.).—1, Yorkshire Greening; 2, Newton Wonder; 3, Cox's Orange Pippin; 4, Winter Pearmain. (P. T.).—Dumelow's Seedling; the two Pears are unknown to us, and are in all probability local seedlings. (W. S.).—1, Belmont; 2, Belle Angevine.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, at being often difficult to separate them when the paper is damp. (J. W. F.).—Camellias such as yours come within the category of florists' flowers, and can only be named by comparison in such large collections as those of Messrs. W. Paul & Son, Waltham Cross, and Messrs. J. Veitch & Sons, Ltd., Chelsea. (H. T. H.).—Your specimen is of Butchers' Broom, *Ruscus aculeatus*. (O. B.).—1, *Doodia caudata*; 2, *Asplenium palmatum*; 3, *Sedum carneum variegatum*. (J. V.).—*Cotoneaster Simonsii*. (G. J.).—All your specimens were dead through careless packing. (F. F.).—1, *Dendrobium Pierardi*; 2, *Phalænopsis Stuartiana*. (L. W.).—*Cornus mascula*. (J. H.).—1, *Daphne Mezereum*; 2, *Primula rosea*.

COVENT GARDEN MARKET.—MARCH 31ST.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	1	3 to 2	6	Lemons, case	11 0 to 14 0
Filberts and Cobs, per 100lb.	0	0	0	Plums, ½ sieve	0 0 0 0
Grapes, per lb.	2	0	3 0	St. Michael Pines, each ..	3 0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100	0	0 to 0	0	Mustard and Cress, punnet	0 2 to 0 4
Beans, ½ sieve	0	0	0	Onions, bushel	3 8 4 0
Beet, Red, dozen	1	0	0 0	Parsley, dozen bunches ..	2 0 3 0
Carrots, bunch	0	3	0 4	Parsnips, dozen	1 0 0 0
Cauliflowers, dozen	2	0	3 0	Potatoes, per owt.	2 0 4 9
Celery, bundle	1	0	0 0	Salsafy, bundle	1 0 1 0
Coleworts, dozen bunches	2	0	4 0	Seakale, per basket	1 6 1 0
Cucumbers	0	4	0 8	Scorzoneria, bundle	1 6 0 0
Endive, dozen	1	3	1 6	Shallots, per lb.	0 3 0 0
Herbs, bunch	0	3	0 0	Spinach, pad	0 0 4 0
Leeks, bunch	0	2	0 0	Sprouts, half sieve	1 6 1 0
Lettuce, dozen	1	3	0 0	Tomatoes, per lb.	0 4 0 9
Mushrooms, per lb.	0	6	0 8	Turnips, bunch	0 3 0 0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arbor Vitæ (various) doz.	6	0	to	36	0	Ficus elastica, each	1	0	to 7	0
Aspidistra, dozen	18	0		36	0	Foliage plants, var. each	1	0	5	0
Aspidistra, specimen plant	5	0		10	6	Genista, per dozen	6	0	10	0
Azalea, per dozen	18	0		36	0	Hyacinths, large, per dozen	6	0	12	0
Cinerarias, per dozen..	6	0		9	0	Lily of the Valley, 12 pots	9	0	12	0
Cyclamen, per dozen ..	8	0		12	0	" " " in boxes	4	0	6	0
Daffodils, per dozen ..	6	0		8	0	Lycopodiums, dozen	3	0	6	0
Dracæna, various, dozen ..	12	0		30	0	Marguerite Daisy, dozen..	9	0	12	0
Dracæna viridis, dozen ..	9	0		18	0	Mignonette, per dozen ..	6	0	8	0
Erica, per dozen	9	0		12	0	Myrtles, dozen	6	0	9	0
" hyemalis, per dozen	10	0		15	0	Palms, in var., each	1	0	15	0
Euonymus, var., dozen ..	6	0		18	0	" (specimens)	21	0	63	0
Evergreens, in variety, doz.	4	0		18	0	Spiræa, per dozen	6	0	9	0
Ferns in variety, dozen ..	4	0		13	0	Tulips, dozen pots	6	0	9	0
Ferns (small) per hundred	5	0		8	0					

Roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—CUT FLOWERS.—Orchid Blooms in variety.

	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches ..	1	6 to 3	0	Mignonette, dozen bunches	3 0 to 6 0
Arum Lilies, 12 blooms ..	2	0	4 0	Narciss, White, dozen	
Asparagus Fern, per				bunches	1 3 2 0
bunch	2	0	3 6	Narciss, Yellow, dozen	
Azalea, per dozen sprays ..	0	6	0 9	bunches	1 0 2 0
Bouvardias, bunch	0	6	0 9	Orchids, var. doz. blooms	1 6 12 0
Carnations, 12 blooms ..	1	6	3 0	Pelargoniums, 12 bunches	6 0 9 0
Daffodils, double, dozen				Polyanthus, dozen bunches	1 0 2 0
bunches	1	6	3 0	Pyrethrum, dozen bunches	1 6 3 0
Daffodils, single, dozen				Roses (indoor), dozen ..	1 0 1 6
bunches	2	0	4 0	" Tea, white, dozen ..	1 0 2 6
Eucharis, dozen	3	6	4 0	" Yellow, dozen (Niels)	3 0 4 0
Gardenias, dozen	4	0	6 0	" Red, dozen blooms ..	2 6 5 0
Geranium, scarlet, doz.				" Safrano (English),	
bunches	4	0	6 0	dozen	1 0 2 0
Lilac, White (French), per				" Pink, per dozen	4 0 8 0
bunch	3	0	4 0	Smilax, per bunch	4 0 6 0
Lilium longiflorum, 12				Tuberose, 12 blooms ..	1 0 1 6
blooms	2	0	4 0	Tulips, dozen blooms ..	0 6 1 0
Lily of the Valley, 12 sprays,				Violet Parme, per bunch ..	2 0 2 6
per bunch	0	6	1 0	" per doz. bunches ..	1 0 1 6
Maidenhair Fern, per dozen				" (French), per dozen	
bunches	6	0	8 0	bunches	0 6 1 0
Marguerites, 12 bunches ..	2	0	3 0	Wallflowers, dozen bunches	1 6 4 0



POTATOES—WHAT TO PLANT.

POTATO growers have had such a bad time of it for the last two years, and the present outlook in the trade is so gloomy, that many are asking themselves, not "What shall we plant?" but "Shall we plant at all?" No doubt many fields were sown with Wheat last autumn that would have been reserved for Potatoes had not a higher price for Wheat tempted the occupier to put in that crop. Everything that has occurred since has been in discouragement of the Potato planter, so we confidently anticipate a considerably reduced acreage of the tuber. We earnestly hope we may prove correct, for no doubt over-production has been the chief and almost only cause of the depression in price.

The great desideratum in a Potato nowadays is quality. We can remember the time when the British public was much less critical as regards its Potato supply, and for a good reason, the British public had to take what it could get and be satisfied. That was before the enterprise of Mr. Clarke had given us the Magnum Bonum. Farmers were still growing the old standard sorts, and sending their Regents to market when the disease left them any to send.

Now, however, all is changed; many new sorts of great value have been raised, very much larger crops can now be grown than formerly under the same conditions, and the chief difficulty of the would-be planter is to decide between the rival claimants to his choice.

The growers of second earlies—i.e., varieties which are marketed before October and direct from the land without storing—have had so much the best of it of late that it seems likely that we shall have an undue proportion of second early varieties planted. The chief in this class are Snowdrop, Elephant, Hebron, and Reading Giant. Of these the Giant is the heaviest cropper and the least liable to disease, but generally the worst in quality; it is

apt to boil very black if kept until after Christmas, and it has been bad to sell during the present winter, whereas there has always been a demand for sound Elephants or Hebrons.

The Snowdrop is an excellent cropper, but very delicate, and must be got off early before disease makes its appearance. Jeanie Deans, one of Mr. Finlay's introductions, is very early and a good cropper, whilst the quality is similar to the old Regent, but being a round Potato is against it for early marketing. A moderate acreage of it might do well, say as many as could safely be got away during the latter half of August, but we could hardly recommend it for winter consumption.

All the above varieties require a good well-drained soil and high cultivation. In fact we do not believe in anything but high cultivation in the growth of the Potato.

Since Potato growing has become more general, with the increase in the acreage it has become every day more evident that the supply was over-reaching the demand. This being so, and the markets being flooded with Potatoes at all prices and of all qualities, it is obvious that the result of the keen competition must be the survival of the fittest. This has come to pass. The consumer, finding himself able to obtain the best quality at a low price, has acquired a taste for the best, and will have nothing else. As only good soils can be depended on to produce first-class keeping quality, it follows that the poorer and lighter soils are no longer suitable for growing anything but the early kinds. If maincrop varieties were never planted on any soils but those of good body and colour there would be fewer Potatoes in the markets, and prices might be higher; but there would be little waste in them, and the consumer would not be altogether a loser.

But having got some good land to plant, what kinds are we to put in it? The old "Magnum Bonum," as a kidney-shaped main-cropper, is still worth growing; but the "Bruce" is whiter in the flesh, and to be preferred on account of its more robust habit.

"Maincrop" is probably the best quality of all, at any rate it commands the highest price; but it is a shy cropper, except on land a very long way above the average in condition. No Potato pays better for high cultivation (75s.). There has so far been no kidney-shaped maincropper introduced which is likely to supersede the three above mentioned.

Of oval and round varieties there are several which have been loudly extolled as being absolute perfection. The Garton we tried for three years on different soils. It is a great cropper, but very late, and is much given to cracking. It has also the disadvantage of being round, which at present is not the fashionable shape. We did not find it satisfactory, and gave up growing it.

Her Majesty, a round of Findlay's, is a good cropper, heavier than the Bruce, and very fine in quality. We have grown it with great success in 1894 and 1895, but last year it did not do so well. We shall grow it again, as it is quite the best of the rounds. A great advantage is its early ripening, it being ready to raise and store by September, and it may be marketed in October.

The "Saxons" we have not grown, but have had good accounts of them from those who have. They are great croppers, and hardy; but this season they have shown a tendency to super-tuberation or second growth. Here again the round shape is a disadvantage. We now come to the Potato which we think the most valuable of all. It is a flattish oval in shape, and is named "Up to Date." It has, as a large dealer observed to us, every qualification which is required in a Potato—cropping power, as demonstrated by the Dalmeny trials, where it produced 19½ tons per acre over 8 acres of ground, handsome shape, robust growth (it is the strongest grower we have seen), hardness and cooking quality. As regards the last we can speak very confidently, for we grew it on weak sandy soil beside other kinds which now use very badly (the Bruce is one), whereas the "Up to Date" still cooks beautifully, the crop was about 40 per cent more than the Bruce. We are confident this is the finest Potato yet introduced. Other kinds are "Fidler's Colossal," which is too large; "Imperator,"

which has seen its best day, and Stourbridge Glory. To sum up, the following will be found most reliable for field culture:—

Second Early.—Snowdrop, Elephant, Reading Giant.

Maincrop for Autumn.—Her Majesty or Saxon.

Maincrop for Storing.—Up to Date; Bruce or Maincrop, according to soil.

WORK ON THE HOME FARM.

Except for one heavy thunderstorm the past week has been fine, with strong drying winds. The land has dried wonderfully, and is again in sowing condition, though rather rough in the strong places. Drilling will now be actively followed until all is in the ground.

There are great complaints of the Wheat plant going away. Wire-worm seems to be the cause. The land will roll well now, and nothing stops wireworm better than constant rolling. We have nothing to complain of, but the Wheat is backward, and not likely to come to harvest so early as last year.

Lambing is over, or nearly so. Results vary very much; lambs on neighbouring farms vary from 100 to 165 per cent. of the ewes. There has been a general loss amongst ewes, varying only in degree.

Sheep are nearly all off the Turnips. The markets are much better, and the spring fairs promise to be decidedly dear. Grass is freshening where the land is dry, and a few beasts are turned out to harden. The trade for store cattle is so far disappointing, but dear sheep should have a good effect on the cattle fairs.

The working of fallows has got somewhat in arrear, for the land has been too wet for the last few weeks, and it was of no use wearing flesh off the horses to no purpose. Fortunately, this year's fallows, being in the same course as those of 1893 (a dry season), never were foul, so that the loss of time is not so serious as it might have been. Every horse that can be spared from the Barley sowing must now be kept at work on the fallows. The portion to be devoted to Mangolds must have the final cleaning at once, and then be ploughed and rolled; it will then be ready for ridging and manuring when drilling time comes. In some parts Mangolds are put in early in April; but the 25th is early enough, and especially in low lying fields subject to sharp May frosts, where it would be safer to delay sowing until the beginning of May.

OUR LETTER BOX.

Calf Dying (W. A.).—Your calf died from a disease known as "black leg," for which there is no cure. It may and can, however, be easily prevented. You say the calf was a splendid one. Only calves that are doing too well are liable. At this time of year, when the weather is mild, great care is needed to prevent calves making too much blood. Knock off all rich food, and carefully avoid hot, close boxes or pens. Remember a calf is not an exotic, and does not need pampering. Try to harden them by turning into yards during the day. A seton is also a preventive. Certain grass fields invariably cause black leg among calves, but a calf that is kept up has no business to suffer, plain diet and cool quarters being the two requisites. A calf will die in a much shorter time than twenty-six hours.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

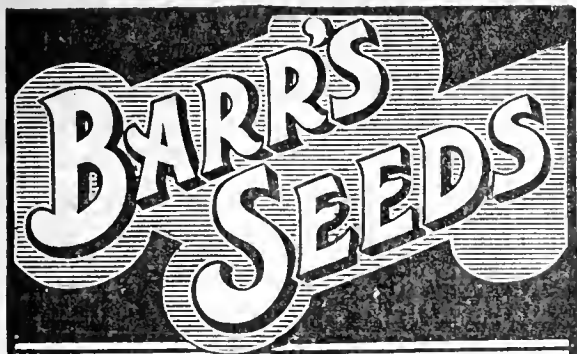
Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1897. March.	Barometer at 30° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 21	30.109	52.3	50.4	W.	45.3	61.3	47.9	92.7	44.2	0.117
Monday .. 22	30.059	52.6	51.4	S.W.	46.8	58.1	49.7	74.2	44.3	—
Tuesday .. 23	29.987	49.6	46.1	W.	46.6	61.7	44.1	101.9	36.4	—
Wednesday 24	29.793	54.4	48.4	W.	46.9	59.7	46.9	100.1	40.9	—
Thursday .. 25	30.050	50.8	46.4	W.	46.3	59.1	44.9	101.7	36.7	—
Friday .. 26	29.857	51.3	49.1	S.W.	47.2	56.9	49.1	79.7	43.2	0.046
Saturday .. 27	29.641	51.6	46.4	W.	47.2	57.6	47.7	98.0	42.9	0.081
	29.928	51.8	48.3		46.6	59.2	47.2	92.6	41.2	0.244

REMARKS.

21st.—Cloudy, close, and hazy till 11.30 A.M.; generally sunny after, but not clear.
22nd.—Rain from 1 A.M. to 4 A.M., and dull and damp till 11 A.M.; gradually improving and a little sun in afternoon; slight shower at 5.30 P.M.
23rd.—Mild and sunny throughout.
24th.—Fine, but frequently cloudy; high wind at times.
25th.—Beautiful throughout, though occasionally cloudy.
26th.—Overcast all morning, gleams of sun at midday; rain at 3.30 P.M., and heavy shower at 4 P.M.; gale and drizzle at night.
27th.—Cloudy, with high wind in morning; generally sunny in afternoon.
An exceptionally warm week for the date; about equal to that usual in the middle of May.—G. J. SIMONS.

Messrs. Street & Co., Advertising Agents, of 30, Cornhill, E.C., and 5, Serle Street, W.C., announce that, in consequence of their increasing business and for the convenience of their West End clients, they will open on Monday, 5th April, 1897, a branch establishment at 164, Piccadilly, London, W.



**FINEST SELECTED STRAINS
OF TESTED GROWTH**

BARR'S "LIGHTNING" RUNNER BEAN
A valuable acquisition, bearing in abundance clusters of pods, remarkably early, and of delicate flavour. Per Half Pint, 2/-.

BARR'S MONSTROUS LONG-PODDED BROAD BEAN.
The earliest, largest, and most productive of long-podded Broad Beans, and of fine delicate flavour. Per Quart, 2/6; per Pint, 1/6.

BARR'S "LEMON GLOBE" ONION.
A grand exhibition Onion, handsome in form, of large size, mild in flavour, and a good keeper. Per Packet, 1/-; per Ounce, 2/6.

FLOWER SEEDS.—Barr's Specialities for 1897.
NEW LARGE-FLOWERED CRESTED BEGONIA.
A splendid novelty, the large handsome flowers having crested combs, colours brilliant and varied. Per Packet, 3/6 and 5/-.

BARR'S SUPERB FRINGED PETUNIAS.
Flowers of immense size and deeply fringed, colours rich and varied. Per Pkt., 2/6 & 3/6.

BARR'S Extra Selected LONG-SPURRED COLUMBINES.
Mixed, flowers of great beauty in form and colour. Per Packet, 2/6.

BARR'S NEW SEED GUIDE FOR 1897
will be sent free on application.

BARR & SONS, 12 & 13, KING STREET, COVENT GARDEN, LONDON.
Nurseries at LONG DITTON, Surrey, near to Surbiton Stn., S.W.R.

BEGONIAS.

Double and Single, Gold Medal Collection, for Conservatory and Exhibition, the largest and best in the trade. See Catalogue.
BEGONIAS FOR BEDDING, superb quality, Double, 6s. and 9s. per dozen; Single, to colour, 5s. per dozen, 35s. per 100; 10 colours mixed, 4s. and 28s.; fine mixed, 3s. and 21s.

B. R. DAVIS, YEovil, NURSERIES, YEovil, SOMERSET.

ASPARAGUS.

Strong, healthy three year ASPARAGUS roots, TRUE GIANT, 5s. per 100, packed and carriage paid. Every garden should contain an Asparagus bed. They are easily made, and now is the season to make them.

BIRD & VALLANCE,
Nurserymen, DOWNHAM, NORFOLK.

**SEARCHERS AFTER
TRUE STOCKS OF
GARDEN PEAS
SHOULD APPLY
TO PENNELL & SONS
LINCOLN FOR
THEIR NEW
BOOK OF SEEDS.**

100,000 BEGONIA TUBERS.—Large, erect flowering; Singles, mixed, per doz., 2s. 6d.; per 100, 18s. Doubles, same price. Send for list, free.—J. WELLS, Begonia Nursery, Ryarsh, Malling, Kent.

CHRYSANTEMUMS.—5,000 Good Strong Healthy Plants. 24 distinct Exhibition Varieties, 4s. Winners of the highest prizes ever offered.
DROVERS, F.R.H.S., N.C.S., Nurseries, FAREHAM.

POTATOES FOR SEED.—Myatt's Ashleaf Kidney, Early Puritan, Snowdrop, Beauty of Hebron, Reading Giant, Imperator, Sutton's Abundance, Up to Date, Saxonia, Magnum Bonum, Colossal, Bruce or Stourbridge Glory. Large or small quantities. Popular Prices. Special terms to Seedsmen. Send for List.—KENNELLY, Smithfield Market, Birmingham.

VIOLAS.—For Exhibition, 2s. 6d. per dozen varieties. For Bedding, including such fine things as White Duchess, Blue Gown, Sylvia, Goldfinch, and Christiana, 10s. per 100, in one or more varieties as desired.—W. BAXTER, The Nurseries, Woking.

IMPORTANT TO MUSHROOM GROWERS.
—CUTHBERT'S SPECIALITE MUSHROOM SPAWN. Always alike; most productive. Hundreds of Testimonials. Per Bushel, 5s.—R. & G. CUTHBERT, Seed, Bulb, and Plant Merchants, Southgate, N. Established 1797.

HEATING APPARATUS.—Medals 1875 and 1881. Catalogue of Boilers, Pipes, and Fittings free. W. Jones' Treatise, "Heating by Hot Water," second edition, 216 pages, 2s. 6d.; post free, 2s. 10d.—JONES & ATTWOOD, Stourbridge.

PURE WOOD CHARCOAL, Specially Prepared for Horticultural use. Extract from the *Journal of Horticulture*: "Charcoal is invaluable as a manurial agent; each little piece is a pantry full of the good things of this life. There is no cultivated plant which is not benefited by having Charcoal applied to the soil in which it is rooted." Apply for Pamphlet and Prices to the Manufacturers.
HIRST, BROOKE, & HIRST, Ltd., Leeds.

ORCHIDS.

CLEAN HEALTHY PLANTS AT LOW PRICES.

Always worth a visit of inspection. Kindly send for Catalogue.

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Exotic Nurseries, CHELTENHAM.

FERNS A SPECIALITY.

We have an immense stock of all kinds of Ferns, Stove, Greenhouse, Filmy, Hardy Exotic, and British, including many very beautiful varieties, rarely seen but which ought to be more generally grown. Catalogue free on application.

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FERN NURSERIES, SALE, near MANCHESTER.

LILIUM AURATUM.

The beautiful golden-rayed Lily of Japan. Magnificent for pots in the greenhouse, or for growing in the open garden. Deliciously scented, quite hardy. Planted now will bloom splendidly during the summer and autumn. Extra fine roots, 10 to 11 inches circumference, per doz., 7s. 6d.; 6 for 4s.; or 25 for 14s. Grand selected roots, 11 to 13 inches circumference, per doz., 12s.; 6 for 6s. 6d.; or 25 for 21s. All post or carriage free for cash with order.

DANIELS BROS., Town Close Nurseries, NORWICH.

CARNATIONS.—Clearance Sale.

A grand collection of choice named double flowered, in beautiful variety, including all the finest sorts. Strong plants from single pots, correctly named, per doz., 4s. 6d.; six for 2s. 6d.; or 25 for 8s. Double crimson Olove, deliciously scented, per doz., 3s. 6d.; six for 2s.; or 25 for 6s. 6d. Packing and carriage free for cash with order.

DANIELS BROS., Town Close Nurseries, NORWICH.

CHRYSANTEMUMS. CLEARANCE SALE.

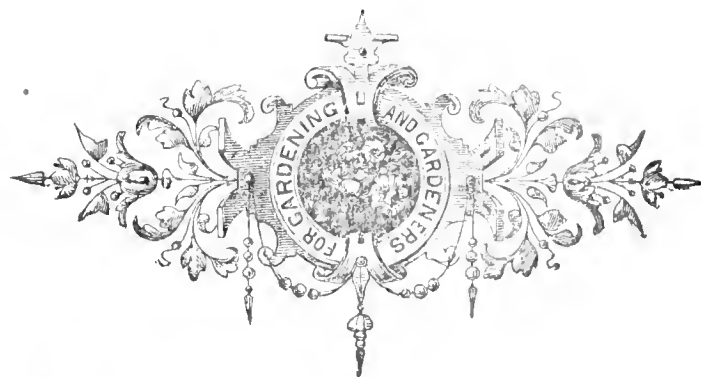
A splendid collection, including all the most beautiful and popular of the Japanese and incurved varieties; strong, well-rooted cuttings, correctly named, per doz., 1s. 6d.; per 100, 10s. 6d. Extra choice sorts, per doz., 2s. 6d.; per 100, 15s. Six grand new exhibition varieties splendid, the set 3s. 6d. All post free.

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A magnificent collection of superb double and single flowered varieties, including the newest and most beautiful sorts in cultivation. Splendid for pot culture or the garden. Strong young plants, from single pots, correctly named, per doz., 2s. 6d.; six for 1s. 6d.; or 25 for 4s. 6d. Extra choice sorts, per doz., 3s. 6d.; six for 2s.; or 25 for 6s. 6d., post free.

DANIELS BROS., Town Close Nurseries, NORWICH.



Journal of Horticulture.

THURSDAY, APRIL 8, 1897.

DAHLIA ANALYSIS—1883-1896.

THE effect of dry and unfavourable seasons is clearly to be traced in the total number of blooms staged at our National Dahlia Show, as compared with the display to be seen there in anything like an average year. For instance, in recent years the two poorest exhibitions were those of 1893 and 1896. Now, if we take the three most important months as regards the growth of the Dahlia—May, June, and July—we find that in those years they were, at all events when taken together, extremely dry, whereas for a moisture-loving plant like the Dahlia, the weather during that particular period cannot very well be too showery. The influence of unfavourable seasons is more clearly to be traced, as might have been anticipated, in the number of Shows and Fancies tabulated, although all sections will be seen, from the following short table, to have been more or less seriously affected. The summer of 1896, although not quite as disastrous as that of 1893, proved in many ways an extremely trying one, owing to the scanty falls of rain, its dry atmosphere, and great heat; moreover, it was preceded by a remarkably dry spring; then towards the end of August heavy rains set in, which, falling on the heated ground, caused the plants to start vigorously into growth when all their energies were required to perfect their flowers.

The number of blooms set up in competition at the last five exhibitions has been as follows:—

	1892	1893	1894	1895	1896
Shows (No. of blooms)...	879	720	894	827	798
Fancies " " " " " "...	340	270	301	287	276
Pompons (No. of bunches)...	267	168	192	210	192
Cactus and Decorative, ditto...	209	264	246	280	220
Singles (No. of bunches)...	138	128	138	102	126

In the above table the number of flowers shown in the classes set apart for three or more blooms of any one variety is not included.

It will thus be seen that the National Dahlia Society's Show, which was held at the Crystal Palace in September last, was an unusually small one, the total number of blooms in all sections falling short of the average for the previous four exhibitions, except in the case of the Singles, which were fairly well represented.

For the eleventh year in succession that refined variety Mrs. Gladstone holds the proud position of premier flower in the list of Show Dahlias. Its records for none of the last four seasons have been, however, quite as good as they were in any of the preceding seven years. The fact is, since the advent of Mrs. Gladstone two other remarkably fine Shows have appeared upon the scene. I need scarcely say that I refer to John Walker, the only pure white Dahlia in the table; and R. T. Rawlings, the leading yellow variety. At no previous exhibition has R. T. Rawlings been as numerously represented as it was last year. Indeed, it was nearly as often staged as Mrs. Gladstone. The oldest Dahlia which finds a place on the list, James Cocker, sent out in 1871, was also unusually well shown. The same may be also said of J. T. West, Duke of Fife, John Hickling, Alice Emily, Earl of Ravensworth, Mr. Glasscock, Queen of the Belgians, and Perfection, which appeared in an unusual number of stands. On the other hand, either the season or the date of the show in respect to it proved unfavourable to the records of Harry Keith, Colonist, Willie Garratt, Henry

Walton, Shirley Hibberd, T. J. Saltmarsh, and many other well known sorts.

There are no fewer than fourteen varieties in the table which have been sent out since the beginning of the present decade. Of these, four were distributed in 1890—viz., Duke of Fife, John Hickling, Majestic, and Alice Emily. Both Duke of Fife and John Hickling have done good service, having been consistently well shown at the past four exhibitions. They now stand together at No. 17. The records of Majestic have also been very regular, and since last year it has risen from No. 28 to No. 26. The fortunes of Alice Emily have been a little more varied, but last year and the year before it was better shown than in previous years, and consequently rises from No. 40 to No. 36. Coming to the 1892 varieties, mention must first be made of John Walker, which stands at the head of all the newer sorts, and, as before stated, only second to Mrs. Gladstone. Its records for the last three shows have been as follows—29, 30, and 29, which taken together are exactly the same as those for the premier flower, owing to Mrs. Gladstone

SHOW DAHLIAS.

Position in Present Analysis.	Average Number of Times Shown.	No. of Times Shown in 1896 in True Relative Proportion to the Average.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	37.6	33	Mrs. Gladstone	1884	Hurst	Pale blush
2	29.3	29	John Walker	1892	Walker	White
3	25.9	30	R. T. Rawlings	1886	Rawlings	Clear yellow
4	25.2	24	William Rawlings	1881	Rawlings	Crimson purple
5	24.4	16	Harry Keith	1886	Keynes	Rosy purple
6	23.0	22	Mrs. Langtry	1885	Keynes	Cream and crimson
7	22.5	21	Colonist	1887	Keynes	Chocolate and fawn
8	20.0	22	Duchess of York	1894	Keynes	Lemon, edged salmon pink
9	19.6	21	J. T. West	1887	Rawlings	Yellow and purple
10	18.3	21	Arthur Rawlings	1892	West	Deep crimson
11	18.0	2	Arthur Ocock	1892	Rawlings	Reddish orange
12	17.7	19	James Cocker	1871	Keynes	Purple
13	16.7	16	Ethel Britton	1880	Keynes	White and purple
14	16.6	16	Maud Fellowes	1889	Fellowes	Pale pink, shaded purple
14	16.6	12	Willie Garratt	1887	Garratt	Bright cardinal
16	16.3	12	Henry Walton	1873	Keynes	Pale yellow and scarlet
17	16.0	18	Duke of Fife	1890	Keynes	Rich cardinal
17	16.0	18	John Hickling	1890	Keynes	Clear bright yellow
19	14.8	14	Mrs. W. Slack	1886	Keynes	Blush white and purple
20	14.7	13	William Powell	1892	West	Primrose yellow
21	13.8	10	Shirley Hibberd	1881	Rawlings	Dark crimson
22	13.4	14	Harrison Weir	1883	Rawlings	Yellow
23	13.1	8	T. J. Saltmarsh	1885	Rawlings	Yellow and chestnut
24	12.4	11	Miss Cannell	1881	Eckford	Cream and crimson
25	12.1	10	Prince of Denmark	1881	Fellowes	Dark maroon
26	10.0	10	George Rawlings	1882	Rawlings	Dark maroon
26	10.0	9	Hon. Mrs. P. Wyndham	1881	Keynes	Pale yellow and rose
26	10.0	10	Majestic	1890	Keynes	White, edged purple
29	9.8	9	Goldfinder	1881	Fellowes	Yellow and red
30	9.0	6	Mrs. D. Saunders	1888	Rawlings	Pale, edged rose
30	9.0	4	Mrs. Morgan	1893	Fellowes	Pale ground, tinted rosy purple
30	9.0*	9	Shotesham Hero	1895	Fellowes	White, tipped and shaded rose
33	8.7	6	Burgundy	1877	Turner	Dark puce
34	8.4	9	Glowworm	1889	Turner	Bright orange scarlet
35	8.3	1	William Keith	1888	West	Dark plum
36	8.2	11	Alice Emily	1890	Keynes	Buff yellow
37	7.8	8	Crimson King	1887	Keynes	Deep crimson scarlet
38	7.6	3	John Standish	1872	Turner	Crimson
39	7.5	11	Earl of Ravensworth	1883	Harkness	Lilac
40	7.3	11	Mr. Glasscock	1886	Rawlings	Purple
40	7.3	4	Prince Bismarck	1879	Fellowes	Puce
40	7.3	11	Queen of the Belgians	1887	Rawlings	Cream and pink
43	7.0*	7	Norma	1894	Turner	Bright orange buff
44	6.9	1	Clara	1879	Rawlings	Rosy peach
44	6.9	2	Joseph Ashby	1879	Turner	Shaded orange
46	6.8	11	Perfection	1889	Fellowes	Orange buff
46	6.8	8	Victor	1887	Keynes	Dark maroon
48	6.4	7	James Vick	1881	Keynes	Purplish maroon
49	6.0*	6	Chieftain	1894	Keynes	Purplish lilac
49	6.0*	6	Kathleen	1893	Turner	Blush

* New varieties, the positions of which are dependent on their records at the 1896 show only.

having been so poorly represented in 1895. Arthur Rawlings rises from No. 13 to No. 10, and at each of the last three exhibitions was better shown than at the previous one. Arthur Ocock (No. 11), although miserably represented in 1896, has good records for the three preceding exhibitions. William Powell (No. 20) loses three places since last year. The only Show Dahlias on the list which were distributed in 1893 are Mrs. Morgan (No. 30) and Kathleen (No. 49). Of the three 1894 varieties Duchess of York already takes up a high position on the table, at No. 8, while Norma will be found at No. 43, and Chieftain at No. 49. Shotesham Hero, which was only sent out in 1895, secures a place at No. 30.

The persistent rivalry for first place in the list of Fancies between Rev. J. B. M. Camm and Mrs. Saunders is still maintained. It may be remembered that the former for the first time in 1895 managed to obtain a slight lead, which it still holds, owing to both varieties having been staged an equal number of times at the last exhibition. Gaiety, for many years the premier flower in this section, now stands at No. 17. It was, however, more frequently staged last year than at any show for six seasons.

Eight new Fancies have, I find, appeared since 1889. T. W. Girdlestone, sent out in 1890, has been shown in a good many stands during the last three years; indeed, for that period only three other Fancy Dahlias have as good a record—viz., Rev. J. B. M. Camm, Mrs. Saunders, and Duchess of Albany. Buffalo Bill, of the same year, has risen from No. 13 to No. 11. Dandy, the only 1891 variety, on its first appearance in the table, takes up its position at No. 16. Comedian, the only representative of 1892, already stands at No. 9. Dazzler, first sent out in 1893, will be found at No. 19; S. Mortimer (1894) at No. 12; Emin Pasha, also of 1894, at No. 14; and Mrs. Mortimer (1894) at No. 19.

The late President of the National Dahlia Society, the Rev. Charles Fellowes, was the raiser of a large number of Show Dahlias, some of which have in their day occupied very prominent positions in these analyses. Prince Bismarck (No. 40), distributed in 1879, is the oldest variety raised by him which finds a place in the present table of Show Dahlias. It was never more largely shown than at the 1883 exhibition, when it occupied the sixth place in the analysis for that year. Since then its decline has been certain, but very gradual. Prince of Denmark (1881) is

another very old favourite. In 1887 it stood at No. 7 in the list. Although now only at No. 25 it still remains the leading flower of its colour—dark maroon. Goldfinder, of the same year, was at one time even more popular, standing fifth in the analysis for five years in succession (1883 to 1887). Of all his flowers, Maud Fellowes (1889), now takes the highest position. The doings of Mrs. Morgan, Shotesham Hero, and Perfection have already been referred to. Mr. Fellowes also raised a good many Fancies, but only one of these, Oracle, has been at any time numerously staged at a Crystal Palace show.

In glancing through the select list of Pompons it cannot fail to be noticed how the best positions are taken up entirely by varieties of recent introduction. In fact, we have to pass over the five leading sorts before we come to any old favourite. Of the older varieties those which maintain their ground best against the new comers are Whisper, E. J. Junker, Darkness, Isabel, and Admiration.

That popular section the Cactus Dahlia is the most modern, and at the same time the one in which the greatest advances have recently been made. Here, again, the most prominent places are occupied by some of the newest sorts, the three leading flowers dating only from 1894. In fact, the only varieties older than these which find places among the first twelve are Bertha Mawley, Robert Cannell, Countess of Gosford, and Juarezi. It is very satisfactory to find Matchless at the head of the list, for it is not only very dependable for exhibition purposes, but has few, if any, rivals as a model Dahlia for ordinary garden cultivation, being of moderate height, very free flowering, and holding its blooms on long wiry stalks well above the foliage.

In the list of Decorative Dahlias the most noteworthy feature is the prominence given to varieties which were only a short time since classed among the true Cactus.

The Singles appear to be somewhat more conservative, for there are still to be found several old friends on the select list. Indeed, as things are going the leading flower Victoria must be regarded as quite an old friend. The fourth place is occupied by James Scobie, followed by W. C. Harvey and Amos Perry, and a little further on by Miss Henshaw. Of these the two youngest were sent out in the same year as Victoria, 1889.

In the following select lists the Pompons have been dealt

FANCY DAHLIAS.

Position in Present Analysis.	Average Number of Times Shown.	No. of Times Shown in 1896 in True Relative Proportion to the Average.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	20.1	22	Rev. J. B. M. Camm	1873	Keynes	Yellow and red
2	19.6	22	Mrs. Saunders	1872	Turner	Yellow and white
3	17.4	17	Duchess of Albany	1884	Turner	Orange and crimson
4	16.6	15	Mrs. John Downie	1889	Turner	Orange and scarlet
5	15.0	15	Frank Pearce	1886	Rawlings	Rose, striped crimson
5	15.0	14	Matthew Campbell	1889	Keynes	Buff and crimson
7	13.8	16	T. W. Girdlestone.....	1890	Keynes	Lilac and maroon
8	11.2	9	Dorothy	1888	Keynes	Fawn and maroon
9	10.5	11	Comedian	1892	Keynes	Orange and crimson
10	9.7	9	Peacock	1877	Turner	Maroon and white
11	9.3	11	Buffalo Bill	1890	Keynes	Buff, striped vermillion
12	9.0	7	S. Mortimer	1894	Mortimer	Rose, striped crimson
13	8.5	3	Rebecca	1883	Keynes	Lilac and crimson
14	8.0*	8	Emin Pasha	1894	Keynes	Yellow, striped crimson
15	7.9	5	Henry Eckford	1886	Rawlings	Yellow and red
16	7.0	11	Dandy.....	1891	Keynes	Orange, striped crimson
17	6.6	8	Gaiety.....	1879	Keynes	Yellow, red, and white
18	6.5	2	Professor Fawcett	1881	Keynes	Lilac and brown
19	6.0*	6	Dazzler	1893	Keynes	Yellow, striped scarlet
19	6.0	5	George Barnes	1878	Keynes	Lilac and crimson
19	6.0*	6	Mrs. Mortimer	1894	Mortimer	Yellow and fawn

* New varieties, the positions of which are dependent on their records at the 1896 show only.

with in a similar way to the Shows and Fancies in the tables. In the case of the Cactus, Decorative and Single varieties, however, the average number of times they were staged at the last two shows alone governs their relative positions in the lists. Those marked with an asterisk are new sorts, the positions of which are dependent upon the number of times they were shown at the last exhibition only.

POMPONS.—G. Brinckman, Bacchus, Tommy Keith, Arthur West, Phoebe, Whisper, Nerissa,* E. F. Junker, Captain Boyton, Darkness, Isabel, Admiration, Favourite, White Aster (Guiding Star), Eurydice, Lillian, Sunshine, Mars, Red Indian, and Grace.

CACTUS.—Matchless, Lady Penzance, Gloriosa, Bertha Mawley, Earl of Pembroke,* Mrs. Barnes,* Harmony,* Mrs. Peart,* Robert Cannell, Countess of Gosford, Mrs. Wilson Noble,* Juarezii, Apollo, Beatrice,* Mayor Haskins,* and Mrs. Gordon Sloane.*

DECORATIVE.—Countess of Radnor, St. Catherine, Kynereith, Harry Freeman, Baron Schröder, Black Prince, Mrs. Hawkins, Countess of Pembroke, Josephine, and Millie Scupham.

SINGLES.—Victoria, Phyllis, Demon, James Scobie, W. C. Harvey, The Bride, Alice Seale,* Amos Perry, May Sharpe,* Miss Glasscock, Miss Henshaw, Mrs. Parrott, Northern Star, Rosebank Cardinal,* Duchess of Fife, Miss Roberts, and Mrs. Wythes.—E. M., *Berkhamsted*.

HORTICULTURAL HISTORY NOTES.

ROUND ABOUT MARYLEBONE.

THE populous suburb of Marylebone is generally regarded as one comparing favourably with other suburbs of the British capital. It has some squalid streets, it is true, but on the whole the houses look out upon cheerful thoroughfares; there are numerous small open spaces, and it has a park—largest of the metropolitan parks. One could fancy it has yet traces of its rural days, and memories of the village from which it grew. For some village or hamlet there was in early times here, which had its church—named after the “good Mary,” it has been said; but more likely it tells of the brook which ran along the fields, and near which was St. Mary-on-the-Bourne. With that freedom from precision which characterised old English spelling, this name was often written “Marybone,” or even “Marrowbone.” During the Tudor times it was part of the royal demesne, which extended from Westminster to beyond Hampstead. Afterwards, what is now the Regent’s Park, with other land around, was enclosed as a deer park. At the end of the great Civil War, this Marylebone Park was sold, the timber upon it being reckoned to be worth £1774—about an eighth of the value of the estate—and eventually the ground was thrown open.

To the builder this was not then particularly attractive, and soon Marylebone Fields were taken possession of by the farmers and market gardeners of last century; one of these, mentioned in 1778, was Alsop, whose land lay between Oxford Street and the modern park, where Portman Square and other squares now stand. On the north was Willan’s ground, probably a portion of the park, and other fields westward. Towards Camden Town we read that Arlington Road overlooked in 1814 ground upon which crops were raised for the market. This is now included in the Regent’s Park. The cold nature of the soil acted as a deterrent against the planting of orchards about Marylebone, and even in raising vegetables here and at Paddington the gardeners had to apply enormous quantities of manure. But of Paddington’s 1200 acres only a twelfth was cultivated in 1800, most of the land being grass. Its trees had nearly all disappeared by that time, save a few Elms, Hood’s playful remark on “that bare wood St. John’s” being really true. Yet there once was a wood here belonging to the Knights of St. John. They had another at Highbury, “little St. John’s Wood.” The arrival of inhabitants, and the formation of streets, led to the planting of other trees; nurserymen also found an opening for their business.

One of the older and well-known nurseries of the district was Guy’s Nursery, where a number of men were employed, the present Lord’s Cricket Ground occupies part of the land. Better known still was Jenkins’ Nursery, which had the site now occupied by the Royal Botanic Society’s Gardens, in the inner circle of Regent’s Park. It was established early in this century, Thomas Jenkins making a speciality of American plants; but he had also numerous houses for various exotics, and a portion of the 18 or 20 acres he held was set apart as a botanic garden on a small scale, open by

subscription, and much patronised. This ground was remarkable for having a gentle fall from the centre to the sides; there were trees, fruit and ornamental, though not numerous, and a considerable stock was transferred by this nurseryman to the Society when it took possession in 1840. One of the chief objects before it was to form botanic or ornamental gardens in and about London.

To those who visit these gardens now there are many evidences of the skill shown by Mr. R. Marnock, who was recommended by J. C. Loudon to the Committee, and employed in laying out the grounds. He formed a lake, contrived undulations, and arranged paths, which were so managed as to make the gardens appear extensive; what trees could be worked into the scene advantageously were left, and others planted where required. Sundry changes have been necessary in course of time, but the beauty and variety around us still bear witness to the master hand of the planner. Two specially notable characteristics were—the garden, arranged according to the natural orders, and that illustrating the geographical distribution of plants. The great conservatory, built in 1846 by Decimus Burton, was not completed till 1876. Exhibitions were commenced in 1853, also botanical lectures by Professors Forbes and Henfrey. Amongst the many schemes proposed in celebration of Her Majesty’s long reign I notice that the Royal Botanic Society contemplates the foundation of an Albert Institute of Botany, which is likely to prove a great encouragement to the study of that subject.

Going along the Edgware Road towards Kilburn, on arriving at Maida Hill, some twenty years ago we found ourselves passing a cluster of nurseries, reminding us of what the King’s Road, Chelsea, was in the good old times of George III. Pine Apple Place was suggested by the celebrated Pine Apple Nursery of that locality, long associated with the name of Henderson. There was a period when Pines were grown in the open air by suburban nurserymen, but this was stopped when the increase of houses and factories added so much smoke to the air. The precise date is uncertain; it seems to have been near the end of last century that the nursery was started by Andrew Henderson. His son, E. J. Henderson, opened another nursery in Vine Place, and lived till 1876, dying at the ripe age of ninety-three—one proof that the profession of a gardener is not unhealthy. At both places a good business was done—not only in fruit, but in greenhouse and garden plants—for many years; it used, however, to be a joke that the best Pines came from Vine Place, and the best Grapes from the Pine Apple Nursery. About 1830 a change was made, the nursery in Vine Place being shifted to the Wellington Road. For a short time the Pine Apple Nursery was held by a Company, I believe. Various improvements were carried out twenty years ago, and the establishment became noted for its large collection of ornamental and stove plants. Palms and Ferns were also a speciality here; thousands of such species as *Adiantum farleyense* or *Corypha australis* have been sent out from St. John’s Wood, far and near. Orchids have been grown here, and still are probably in large numbers, the firm having given its name to *Hippeastrum Hendersoni*, a handsome species, raised in unheated pits during the summer, and which flowers freely through the winter months.

Wandering about St. John’s Wood several years ago, I came upon a nursery that was in process of extinction, situate in the Garden Road, near Grove Road, but so placed, being surrounded by lines of houses, that it would have not been easy to find it if a stranger to the locality. It took my attention, because the last possessor had been a Mrs. Ginn, who had apparently figured as a nurseryman before her sex had begun to take up this calling, which now enrols not a few women, and is likely to attract more. No doubt, the dilapidated hothouses and neglected fruit trees have gone and left no trace. One of the older nurseries of Maida Hill was the Clarendon, belonging to Mr. Videon, and another rather extensive was that of Mr. Fairnington, nurseryman and also landscape gardener.

The name of Bayswater has a doubly aquatic sound, and certainly in the olden time it was a place where water abounded. Its springs, rivulets, and ponds were numerous. It even furnished a supply to City conduits, conveyed thither by pipes during the Tudor and Stuart periods. Like other London suburbs, this had its old mansion, Westbourne Place, built in the reign of Henry VI. The garden became noted for its horticultural excellence when in the hands of Jukes Coulson, about the middle of last century. Then, soon after, Bayswater attracted the friends and customers of Sir John Hill; a medico-botanist and quack, some have called him, though really he had great abilities, and wrote upon a great variety of subjects. Loudon admits he helped to spread knowledge concerning the habits and structure of plants; indeed his place at Bayswater was a sort of botanical garden, but he could not make it pay, and at last it degraded into a pleasure ground. Certainly he did puff his balsam of honey, and his essence of Waterdock, produced on the spot, but they may have had good qualities. One

of his rather curious works was a treatise upon raising trees from leaves, another was upon the modes of developing double flowers. His "Eden, a Complete Body of Gardening," was a handsome folio with coloured plates.

People thought themselves fortunate who obtained leave to visit the garden of Comte de Vande at Bayswater, for though the extent was only 2 acres, it had a number of plants representing the Flora of every known country, and a special collection of Roses. One of the oldest nurseries at Bayswater was upon Craven Hill, so named from Lord Craven, who had a mansion in Drury Lane during the seventeenth century, and gave a plot of ground outside London to be used as a "pest field" should the plague break out again. No burials took place there, and after the nursery and market garden had for some years occupied the spot, the last possessors, Hopgood & Co., removed westward about 1844, and houses were built on the slope. Twenty years ago Mr. Burley's establishment at Hereford Road had some remarkable plants, amongst them *Aspidistra punctata*, the purplish flowers of which are developed under the soil, where they usually mature without coming to the daylight. This suburb afforded a home to the illustrious J. C. Loudon during the later years of his life.—J. R. S. C.

SCOPOLIA FLADNICHIANA.

"F. D. B." is perfectly correct in surmising that this plant is comparatively little known or grown. It was, however, exhibited some years ago by Messrs. G. Paul & Son, The Old Nurseries, Cheshunt, and was adjudged an award of merit by the Floral Committee of the Royal Horticultural Society at the Drill Hall. It is rather a robust growing herbaceous plant, with bright green leaves, and pretty bell-shaped pale yellow flowers. This plant seems perfectly hardy on the summit of the rockwork at Cheshunt. It is a Central European plant—Hungarian or Bohemian—and blooming as it does early in March with flowers apparently frost-proof it looks like a valuable addition to the hardy spring flower garden. Fig. 63 represents the flowers and foliage.

HELIOTROPES.

THESE deliciously scented flowers have long been great favourites by all who have a garden, and thousands who cannot boast of a garden plot cherish and tend with assiduous care a few plants in pots. Like the Fuchsia, the Heliotrope when first introduced into this country rapidly became a general favourite. Although the flowers of the original form of *peruvianum* were not particularly showy the odour they emitted was so exquisite that many a gorgeous scentless blossom was rejected for a spray of "Cherry Pie."

As a nation we Britishers are by no means devoid of a love of display, but in the matter of flowers the majority show good taste in considering no blossom perfect, however beautiful it may be, if it lack perfume; but fortunately there are many flowers which are delightful in colour, almost perfect in form, as well as delicious in scent—a combination of good qualities to be found in the Rose. In selecting this for their national emblem, I often think the English showed that marked amount of shrewdness which is generally associated with the canny Scot; but I doubt not that some of our friends across the border will be prepared to stand up as champions of the "Thistle," though perhaps scarcely to claim for it the beauty of the Rose.

It is now the order of the day to utilise a great variety of plants for summer bedding, and those which produce fragrant flowers are perhaps more popular than ever. Heliotropes are well adapted for this style of bedding, and many of the newer varieties have really attractive flowers in shades of colour peculiarly their own. What can be more beautiful in its way than a large bed planted alternately with yellow *Calceolarias* and Heliotrope *Madame Daurel*? I know of no other summer-flowering plant adapted for bedding which produces flowers of so fine a shade of violet blue as does the first-named Heliotrope. Another good method of arrangement is to confine the plants to a single stem till they are about 2 feet in height, then remove the point, which will cause them to branch freely. If these are disposed 3 feet apart in beds, and the groundwork filled in with dwarf yellow *Antirrhinums* or *Calceolarias* an excellent effect is obtained to please the eye, and a delicious odour to gratify the smell. Well-grown standards might also more frequently be used with advantage in the same way that standard *Pelargoniums* are.

When once grown into the requisite size and form they can be easily potted up in the early autumn, and kept as cool as safety permits throughout the winter, to enable them to recoup their energies for another season's work. These are only a few of the

many ways by which the scent of "Cherry Pie" may become more plentiful in our gardens. The chief point to consider now is to provide an ample stock of plants ready for planting out during the first week in June.

Good cuttings inserted now in propagating houses, vineries, or pits will, with proper attention, make good plants by that time. A simple method of propagating is to insert the cuttings in boxes 6 inches in depth. An inch of finely broken crocks placed in the bottom insures ample drainage. Over this place 3 inches of light sandy soil pressed firmly, then dibble in the cuttings, water thoroughly, and cover the boxes with squares of glass. In these close miniature frames the cuttings root quickly, either when placed in full sunshine or in a partially shaded position. Some-



FIG. 63.—SCOPOLIA FLADNICHIANA.

times, however, if too much shade is given the cuttings show a tendency to "damp off." When this state of affairs is discovered the boxes should be at once placed in a sunny position near the glass, or on the hot-water pipes, and no further loss need be feared.

When the cuttings begin to grow the glass must be removed, and a week later each young plant transferred to a 3-inch pot, using a compost of two parts loam and one of leaf soil. Ten days after this operation has been performed the points ought to be removed from those intended for growing in the form of bushes, and a stake placed to others which are to be confined to a single stem. At this season the young plants make rapid progress, and will in the course of a few weeks be ready for a shift into 6-inch pots. At this potting a little refuse from a spent Mushroom bed should be mixed with the soil, which ought to be pressed very firmly, with the object of inducing sturdy growth. In order to obtain good sized plants they should be kept in an intermediate house or vinery till the middle of May and then be gradually hardened by placing them in cold pits. If numbers of old plants in 5 or 6-inch pots are now at command they should be repotted, removing at the same time all but the two strongest shoots, and securing these to a neat stake. Examples of this description will

by bedding out time be found extremely useful for employing as "dot" plants.

In addition to the number required for planting in the open air others should always be grown for the embellishment of the conservatory during the summer and autumn months. It is also a good plan to keep a few large plants in readiness for planting against walls in greenhouses, conservatories, or vineries, as these often supply large quantities of flowers during the spring months, when they are especially welcome for use in a cut state, as well as for the scent they emit in the houses in which they are grown.

The following are all excellent varieties:—Amazon, white, large truss; Bouquet Perfume, lilac blue; Colosse, truss very large, Giganteum, bluish white; Madame Laforce, violet rose, extra good; Madame Daurel, violet rose, dwarf habit; Madame Emma Brouillet, reddish violet, free bloomer; President Garfield, and Swanley Giant, rosy purple.—H. D.

ROUND PIETERMARITZBURG.

I HAVE briefly remarked in a previous article upon the attractions of Nature around the city and district of Pietermaritzburg, Natal, which is surrounded by a lofty range of hills. Maritzburg, as it is usually called for the sake of brevity, is about seventy miles from every other place of importance, and stands 2300 feet above the sea. The population is 10,000. As a rule the city is very quiet, though it is a good all-round place of business. There are three nurserymen and seedsmen who are always ready to supply customers with what they do not require, and there is room for a fourth who understands the trade and will supply the public with what they do require. At present if one send an order of a dozen items, two-thirds of them are sent, and the remainder are substitutes, and not the best of those.

I must not forget to mention the Horticultural Society, which is decaying from the malady known as dry rot. The Society holds three exhibitions every year. I was recently called upon to officiate at the spring show as a judge, and found the plants were very poor. Of course glass is not very extensively used for plant cultivation, as the cost of erection is high; so that most of the plants exhibited were grown on verandahs. The cut flowers on the whole were good, especially the Roses, despite the fact that the weather for a few days previously had been very trying owing to the prevalence of hot winds.

The citizens are well provided for in the way of open spaces. In the centre of the city close to the legislative chamber, post office, fine town hall, and market place, we have some small gardens nicely planted and neatly kept, while at a distance of only a little over half a mile there is a charming park of 100 acres with good cricket and football grounds, golf links, and drives. There are many trees and shrubs, and last, but by no means the least, is the Botanical and Horticultural Society, which numbers Lord Wolseley amongst its distinguished subscribers.

The Society is well supported in various ways by the *élite* of the district. I have taken the following statement of its object from the Natal Directory:—"The object of the Society is the propagation of trees, shrubs, plants, roots, and seeds for distribution throughout the colony; and in furtherance of this object for the purpose of collecting indigenous plants and seeds and exchanging same with kindred societies abroad; also for experimenting on the growth of vegetable products of economic value, and for the accumulation and preservation of trees, shrubs, and flowers of value, beauty, and rarity." The gardens of the Society are charmingly situated in the Zwartkopp valley, nearly two miles from the city, across an expanse of common and through a long avenue called the Mayor's Walk. It would be well for the public if the Mayor and Corporation had to traverse it frequently, as it might induce them to keep it in better order.

The gardens and arboretum are 100 acres in extent. They are well designed and planted, and kept in good order by the supervision of the able and genial Curator, Mr. G. Mitchell, who has during his seven years' tenure of the office made many valuable alterations in them, and introduced numerous trees, shrubs, and plants, of which ten thousand have been sent out this year to subscribers and customers, and many thousands more are being worked up to meet the coming season's demand.

It is a place in which one can always find objects of beauty and interest, and it is difficult to specialise, as there are so many worthy of notice. On entering the gardens by the Curator's residence visitors are attracted by a fine specimen Palm, *Phoenix reclinata*, about 20 feet high, which has been sadly disfigured by the depredations of the locusts. A few of the many other objects worthy of note at this spot are some fine bushes of Gardenias and two Magnolias, about 40 feet high, in full flower. There is the beautiful

Lagenaria Patersoni, which grows into a fine tree here, flowering profusely, the colour being a delicate shot pink; while close by is a splendid *Duranta Plumieri*, with its distinct and pretty blue flowers freely produced for nine months of the year. Planted by its side is the *Reinwartia*, with lovely yellow flowers, and a few bushes of *Azalea indica* of various colours, and a good piece of *Araucaria excelsa*. In the background are some *Bambusas*, and two excellent specimens of *Cupressus macrocarpa* and *C. lusitanica*.

In passing on to the interior of the gardens at every step one sees many interesting specimens of plants, trees, and shrubs, which must be left without comment for fear of being tedious; but there is one of the many which is specially worthy of notice—viz., a fine piece of *Cactus grandiflora* (of the correctness of the name there is a doubt), but anyone who has seen it at sunrise, with scores of its fine brilliant flowers glistening with dewdrops, will have no doubt of its effective beauty.

The next place of interest is a very fine pond, about an acre in extent, surrounded by numbers of fine pyramid bushes of *Camellias* of many shades of colour, with some grand pieces of *Azalea indica* interspersed amongst them. I think it would be impossible to find any more vigorous or floriferous than are these. In the background there are many varieties of handsome foliage trees and flowering shrubs, just at their best a fortnight ago, prominent amongst them being *Hibiscus palustris*, *H. rosea sinensis*, *H. Baptisti*, and the native *H. calycinus*, and *Bocconia frutescens*, with its handsome glossy foliage and fine white bell-shaped flowers; also the pride of India, both red and white, *Lagerstroemia* I think is the right name; *Calystemons*, both red and white; *Plumbagos capensis* and *rosea*; and a *Poinsettia*, which has been in flower for six months.

Oleanders, pink and white, and the *Grevillea*, which I mentioned in some previous notes, its lovely brown and golden orange colour and exquisitely formed flowers cannot be surpassed in floral beauty or elegance. All these are backed by *Coniferae* and lofty Gum Trees, the latter ranging from 100 to 160 feet in height. Amongst the former deserving notice are *Cupressus funebris*, *C. Goveniana*, *Lawsoniana*, *C. sempervirens*, and *Thuia gigantea* and *orientalis*, all these being as good as one could desire to have them. There is also a fine *Musa*.

The Gardens are well patronised by the citizens, and are always open to them free of charge. Most of the things mentioned are not confined to the Gardens, as these and many other good things are largely grown around the neighbourhood, but not so well, as the soil of the Gardens is good, and more congenial to them than any other part of the district.—W. H., November 20th, 1896.

(To be continued.)

ROYAL HORTICULTURAL SOCIETY'S COMMITTEES' AWARDS.

SURELY the logical faculty is altogether wanting in "A. D." He first institutes a comparison wherein the number of awards made by the deputation of the Council of the R.H.S. at the York and Chester Shows is taken as against those made at a series of meetings of the Floral Committees, including those at the Drill Hall, regardless of the obvious difference of the conditions existing in relation to these several shows, of which he seems altogether oblivious. On the other hand, he becomes keenly sensitive to the undoubted difference existent between the York and Chester Shows and that at the Temple, and he asks, "What on earth has the Drill Hall or Chiswick meetings to do with this comparison?"

The answer is obvious. Exactly the same as have the Drill Hall or Chiswick meetings to do with the shows at York and Chester—i.e., nothing. That is the conclusion to which I have been labouring to lead "A. D.'s" mind. But, unfortunately for him, it is completely destructive of his censure of the Council's action at York and Chester, which was the motive of the letter with which he opened the controversy.

The other point must be conceded to "A. D." A blurred impression made "would" look more like "should;" but, accepting the former word as correct, I am pleased to find that "A. D." agrees that the granting of awards has been too free. Whether compelling every member of the Committees to vote would, or would not, tend to a diminution of the number of awards is a question open to discussion; but surely there can be no possible doubt that this result would be achieved by the substitution of a two-thirds for a bare majority.

I do not suggest that if a novelty is submitted which is of sufficient merit, an award should be withheld on account of the number already granted in a particular year. If a new variety deserve recognition it should have it; but I do contend that where so much doubt exists as is indicated by only a bare majority of one in favour of an award, there does not exist sufficient evidence of merit to justify the placing of the *imprimatur* of the Royal Horticultural Society upon the plant in question. Undoubtedly had the "two-thirds" majority been applied in 1896, the number of awards granted in that year would have been considerably and, in the interest of the public who look to the Society for guidance, advantageously diminished.—F. R. H. S.



SPRING NOTES.

WE learn that owing to the Palais de l'Industrie being in course of demolition the next Paris Chrysanthemum Show will be held in the Tuileries Gardens. The show will be opened on Wednesday, the 10th November, and close the following Sunday. Having regard to the great activity in everything relating to the popular flower in France this show should show a decided advance on all previous ones held by the National Horticultural Society, whose headquarters in the Rue de Grenelle have long been insufficient for the purpose.

The French National Chrysanthemum Society has for some reason not been allowed to retain the title "National," and will henceforth be known as the "Société Française des Chrysanthémistes." The sixth number of its monthly Journal is just to hand, by which we learn that there are now 286 members, including nineteen affiliated societies. The annual Conference for 1897 will be held at Orleans, and, like the one held last season at Bourges, bids fair to be an interesting and successful one.

Members of the Northern French Chrysanthemum Society are entitled to receive a copy every month of the Society's official organ, the "Nord Horticole." It is a neatly printed, bright little monthly that has dealt most liberally with the flower for nearly a year past. As evidence of its vitality, and I might add vivacity, it actually blossomed forth into a special double Chrysanthemum number last November, of which I find no mention was made at the time, probably owing to my absence on the Continent. Excellent portraits of Messrs. Calvat, de Reydellet, and Louis Lacroix, with short biographies, were given, and an unparalleled array of Chrysanthemum literary talent was summoned forth by the editor.

Chrysanthemums in Portugal are becoming of some importance there, and a show last November, in the Crystal Palace at Oporto, has already been noticed in a contemporary. M. Henri Cayeux, of Lisbon, the author of the only Portuguese treatise on the popular favourite, was one of the leading prizewinners, and although aware to some extent of the esteem in which it is held in that country, I was scarcely prepared to receive such an imposing catalogue from a trade grower as has recently come to hand. Its size is 12½ inches by 9½, and it consists of nearly sixty pages. The title is "Catalogo-descriptivo dos Chrysanthemos á venda na casa Frederico Daupias." The compiler, like several of his English colleagues, favours us with his portrait, a budget of selections from the press, and about twenty large sized illustrations of Chrysanthemums of different types. It is, indeed, one of the most imposing catalogues, either English or foreign, ever published, but its large size renders it rather unwieldy.

Western King is one of the varieties that was entered in competition for the gold medal of the American Chrysanthemum Society on the occasion of the Jubilee Show of the N.C.S. last November. Mr. Elmer D. Smith has recently sent me a charming photograph of this variety, showing seven beautiful solid-looking blooms arranged in a vase, and, notwithstanding the colour, every petal is shown as perfect and as clearly defined as if one were looking at the actual blooms.

M. Ernest Calvat's new catalogue for 1897 is again a tastefully designed piece of work, and contains several photographic reproductions of his novelties, besides having an inset plate in chromo-lithography of his green-flowered variety called Madame Edmond Roger. If I were asked to make a small selection of his 1897 seedlings I should, judging by the condition in which they were staged at Paris, give the preference to Czarina, Fée du Champsaar, Madame Deis, Madame X. Rey Jouvin, Mlle. Laurence Zélé, Mlle. Lucie Faure, President Nonin, and Surpasse Amiral.

During the present year an international exhibition will be held in Brussels, and in conjunction with it there will be several large flower shows. One for Chrysanthemums will take place on the 6th, 7th, and 8th November next, and schedules have already been issued. Fifty-eight classes are provided, and medals up to £8 in value each are offered for competition. Entries must be made before the 15th October.—C. H. P.

THE CONSERVATORY AT GROVE PARK, KINGSBURY.

AT the seat of W. Walton, Esq., where Mr. Dryden is gardener, the houses for fruit and plants are twelve in number, but my intention is to speak only of the conservatory. It is a lofty old-fashioned structure, with a dead wall on one side, but clothed with living verdure—*Selaginella denticulata*, *Rex Begonias*, *Ficus repens*, and Ferns.

The remarkable feature of this house was that everything had been

brought on in a greenhouse temperature, illustrating what may be done by skill in an inexpensive manner. The pillars and cross bars were festooned with *Tropæolum* Ball of Fire, which added a glow of colour, to be appreciated in the dull days of winter. The centre of the house is set apart for large plants, stages about 3 feet in width along the sides, and a path running entirely round.

Occupying the centre were large specimens of *Dicksonia antarctica*, *Cyathea Smithi*, two semi-double *Camellias*—*Maria Thérèse* (white splashed and mottled with pink) and *conspicua* (bright red); two pyramidal *Azaleas*, a mass of bloom—*Fletcher's White* and *Raphael* (semi-double white); several plants of the hardier Palms—viz., *Phoenix dactylifera* and *Chamærops excelsa*, with a number of large and remarkably healthy plants of *Justicia carnea* and *J. coccinea*, bristling with bloom; a large standard of *Tea Rose Madame de Watteville*, with at least two dozen expanded blooms. Other *Tea Roses* in flower were *The Bride*, *Niphetos*, *Safrano*, *Grace Darling*, and *Perle des Jardins*.

Around the sides of the house were arranged in a light and elegant style several dozens of *Deutzia gracilis*, remarkable for cleanness of growth and profusion of bloom; several plants of *Libonia floribunda* 2 feet high and bushy in proportion, literally covered with bright flower; intermingled were *Blood Red* and *Belvoir Castle Yellow* Wallflowers in 6-inch pots, great bushes a mass of bloom; *Hyacinths* in large pots, so as to make effective masses; *Tulips*, *Polyanthus*, *Narcissi Grand Monarque* and *gloriosa superba*; *Cinerarias*, a strain free from those magenta colours which destroy others; *Primulas* and *Cyclamens*, several fine plants of *Streptosolon Jamesoni*, *Celsia cretica*, autumn sown; and *Carnations* *Madame Arthur Warocque*, the crimson *Malmaison*. In fact, the house was a charm throughout of beauty and fragrance, and was most creditable to the head gardener, Mr. Dryden.—T. STREET.

THE LATE DR. HOGG.

I CAN claim to be one of Dr. Hogg's oldest living acquaintances. It was early in April, 1838, that I went to lodge at Mr. Wheatley's, and Mr. Robert Hogg kindly consented to share his room with me. This was at Brentford End. We had a charming view from the sitting-room (which was over the shop) of all the passers-by. The Queen always went that way to Windsor Castle, and nine mail coaches passed every evening to the West. Mr. Robert Hogg (who was then at Mr. Ronald's) had been lodging there for some time.

It was from there that Mr. Hogg, I, and Miss Wheatley—Mr. Wheatley's daughter—went to witness the procession at the Queen's Coronation. We took our stand in St. James' Street, Piccadilly, on the west side, about half way down, where we had a splendid view of all—I might say perfect—both in going to and returning from the Abbey. I have still a very vivid impression of the Queen's appearance. In going it was a sort of nervous flush; on returning it was that of great fatigue from the long service at the Abbey and from the constant bowing to the cheers of the spectators, for it was almost without intermission from side to side. It was the turning from side to side that made it so wearisome. We stayed to see the illuminations, and it was almost midnight before we got back to Brentford End.

It was while Mr. Hogg was there that he brought home in his large botanist's tin a fine snake, which by some means got out in our bedroom at night. This was rather an exciting experience. The women folk were afraid to enter. The room was searched, as we thought thoroughly, and the snake could not be found. I forget how many days it was before it was discovered; we thought it must have made its escape. One of the women eventually discovered it. I had a very large leather-covered trunk, and under the bottom of this there was a cross-piece of wood near each end, so that the bottom was a little raised from the floor; it was under this that it had got. I forget how we killed it, but Mr. Hogg spent many hours over it getting the flesh off, so as to have a perfect skeleton.

I am not sure of the exact date he left Mr. Ronald's, but some time in the summer of 1838. The then Duke of Devonshire engaged him to make a collection of indigenous plants. I went to Chiswick while this was being done. Mr. Edmonds showed me what he had collected—all potted, standing on coal ashes, all labelled. I did not see anything of Mr. Hogg after this for a long time; but in 1841 or 1842 I went to the Bath September Show and there met with him. I think he told me he was with Mr. Gregory, and travelling for him; but he had begun *Tulip* growing (of course, more as a hobby than as a commercial affair), but he told he had given £90 for a bulb of a variety. He told me the name, but I do not remember it. Yet I do remember that he told that he had got an offset from it which he valued at £30. I joined the British Pomological Society, and, of course, was in communication with him on that account, and I often used to meet with Dr. Hogg at the Council room at South Kensington. I have only been about twice to the Drill Hall.

I omitted to say that some of Mr. Hogg's leisure was spent in writing Latin synonyms. I cannot tell the long lists he would have. One was "*Achillea*," I remember, and such columns as he had searched up astonished me. Many students were making his acquaintance even in these days, young as he was. I remember some gentleman wanted to introduce him to the then Duke of Bedford, who was a botanist. He had written and illustrated a work on the "*Tilia*" as a sort of recreation, so this gentleman told Mr. Hogg. I am a little over a year his senior, that is I am just over eighty. I ought to say that I have ever found him a faithful and devoted friend.—GEORGE LEE, *Clevedon*.



WEATHER IN LONDON.—Bitterly cold have been the winds in London during the past week. The quarter has been north-easterly and easterly throughout the whole of the time until Wednesday morning, when a slight rain fell, and the City in the early hours was enveloped in a dense fog. Towards the time of going to press the fog dispersed, but the rain continued.

WEATHER IN THE NORTH.—Frost ranging from 5° to 9° has been registered every morning during the past week. The wind has been frequently high, generally from the east, and always bitterly cold. Snow has fallen freely in several parts of the country, and altogether the weather has been of a wintry nature. Farm and garden work has, however, been pushed forward after the spell of wet.—B. D., *S. Perthshire*.

CRYSTAL PALACE FRUIT SHOW.—The prize schedule for this show will be issued by the Royal Horticultural Society in a week or ten days' time, and will contain an authoritative list of dessert and cooking Apples and Pears and Plums, post free 1d. Donations towards the prize fund will be gratefully received by the Society.

ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral meeting of the Royal Horticultural Society will be held on Tuesday, April 13th, in the Drill Hall, James Street, Victoria Street, Westminster, in connection with which the National Auricula and Primula Society will hold their annual show, 1 to 5 P.M. At three o'clock a lecture on "Artificial Manures" will be given by Mr. J. J. Willis.

VIOLET MADemoisELLE BERTHA BARRON.—A Violet more worthy of cultivation than is given it is Mademoiselle Bertha Barron. It is one of the most hardy double varieties grown, and comes into flower when nearly all other varieties are beginning to get short. I have grown it this last four years in the open borders, and never found it suffer the least from frost. With us it begins to flower the first week in April, and its beautiful dark indigo blue and scent is much appreciated.—E. TROLLOPE. [The flowers sent are particularly rich in colour, but, possibly through packing in moss, lack fragrance.]

THE HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—The last meeting on the syllabus was held on Tuesday, March 30th, when the result of the essay competition was made known. The first and second prizewinners were Mr. F. L. Thurston, Hessewood Gardens, and Mr. M. Skinner, Bishop Burton Gardens, respectively. It was decided to give Mr. R. Greenfield a certificate, his essay being third in order of merit. Five members competed, and great credit is due to each one, they displaying good talent for young gardeners. The chairman (Mr. Chas. Lawton) briefly reviewed the past session, which has been the most successful one both financially and otherwise the Society has ever had. A certificate of merit was awarded Mr. Geo. Picker, gardener to F. R. Pease, Esq., Hessewood, for some splendid blooms of *Amaryllis*, of which the seeds were sown three years ago, which for size and colour would be hard to beat. The annual dinner was announced for April 14th.—F. L. T.

ISLE OF WIGHT.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday last. During the afternoon and evening there was an exhibition of Narcissi and other spring flowers. Messrs. Barr & Sons of London staged a magnificent collection of Daffodils and Tulips, numbering about 150 bunches in all, which were effectively arranged, the monotony being relieved by Palms and Maidenhair Ferns. Mr. A. E. Cave of Newport Nurseries staged a group of plants, including Azaleas, Orchids, Ferns, and Palms. In the evening Mr. T. W. Birkenshaw's paper on Daffodils was read by the Secretary. In the subsequent discussion which followed it was agreed that the exhibition would give an impetus to hurb culture in the Isle of Wight which in many places might prove of commercial value if capital, labour, and knowledge were applied. The Association, under the chairmanship of Dr. J. Groves, F.G.S., is endeavouring to create a greater interest in horticulture in the Garden Isle, and no doubt this, the first spring show ever held in the island, will be a means to accomplish this object.—S. H.

THE DAVID THOMSON TESTIMONIAL.—The subscription lists for Mr. Thomson's testimonial will close on May 1st, and it is hoped all who intend to join will send in their subscription by the above date.

GARDENING APPOINTMENT.—Mr. Maurice Jones, late gardener to Baron Von Roemer, Lime Park, Hurstmonceux, Sussex, has been appointed head gardener to W. Cooper, Esq., Cockley Cley Hall, Swaffham, Norfolk.

CYCLAMENS AT LUTON HOO.—A few weeks ago I had the pleasure of visiting Mr. G. H. Maycock at Luton Hoo Park, and was particularly struck with the collection of Cyclamens. The plants were in 48-pots, and had been raised from seeds sown about twelve months previously, and the manner in which they were blooming spoke volumes both for the excellence of the culture and the strain of seeds (Sutton's). In all there were about 1000 plants, and there was not an inferior one in the whole number. It is gratifying to see how Cyclamen growing is both improving and increasing, though such collections as the one noted are still by too seldom met.—TRAVELLER.

DEATH OF MONS. G. VILLE.—We learn with regret that Mons. Georges Ville, the eminent authority on chemical manures, died on the 22nd February, in his seventy-fourth year. He carried out a series of agricultural experiments in the trial ground of Vincennes, Paris, as long ago as 1867, and published a book entitled "Les Engrais Chimiques," in 1868. It has passed through seven editions at least, the seventh appearing in 1890, and has been translated into Italian, German, Polish, Russian, Spanish, Portuguese, and English, a translation being also made in the United States of America. The principles he taught, or the views which he expounded have been generally accepted, and are advocated at the present day, including those relating to the fixation of the free nitrogen of the atmosphere by the bacteria in the nodules of the roots of leguminous plants.

WAKEFIELD PAXTON SOCIETY.—At the ordinary weekly meeting of the members of this Society, held Saturday evening, March 27th, Mr. W. H. Milnes of Green House, St. John's, presided, and Mr. W. Tunnicliffe of the Poplars, Thornes, occupied the vice-chair. There was a good attendance. The lecturer was Mr. G. H. Goldsborough of the Wakefield Asylum, and he delivered a lengthy and exceedingly interesting lecture on "Swaledale," illustrated by a large number of beautiful photographic slides, which was cleverly thrown on the screen by Mr. Harold Parkin, lanternist to the Society. Mr. Goldsborough, who appears to be thoroughly acquainted with the Yorkshire dales, and is also a naturalist and antiquarian, gave his audience much historical information, and related many interesting incidents in connection with Swaledale, its castles, mansions, rivers, waterfalls, and woods.

THE CARSHALTON, BEDDINGTON, AND WALLINGTON HORTICULTURAL SOCIETY.—An interesting ceremony took place on the occasion of the anniversary dinner of this prosperous Society, which was held in the Public Hall, Carshalton, on the evening of the 31st ult. Mr. H. Cosmo Bonsor, M.P., presided, and was supported by Mr. E. J. Halsey, Chairman of the Surrey County Council; Mr. A. H. Smee, C.C., a great patron of county horticulture as practised so successfully by the operative classes; Mr. H. Macan, M.A., Secretary of the Technical Education Committee, and many other gentlemen, including representatives of the District and Parish Councils. The workers also attended in goodly numbers, the assemblage comprising some 150 persons. Excellent speeches were delivered by the Chairman, Mr. Halsey, and others, the last named gentleman presenting the silver Banksian medal to Mr. Harvey Hopkins, as not only the champion allotment holder of the district, but of the county of Surrey; and right well he deserved the honour in view of his splendid work, carefully appraised during the last three years. It was remarked during the evening that this was the first occasion that the Banksian medal had been granted to any individual allotment holder, and it is bound to have a stimulating effect. If the Council of the R.H.S. (which seems anxious to do all the good possible should grant a similar medal another year, the Committee of this prosperous local Society (of which Mr. G. W. Cummins is the efficient Honorary Secretary) may perhaps consider the advisability of granting it to the champion cottage gardener in the district. It was stated during the evening that the immediate effect of a conference held in connection with one of the shows of this Society on August 3rd, 1891, was the formulation of a syllabus for the teaching of horticulture in schools, which was adopted by the Education Department, and the meeting was also the pioneer of teaching practical horticulture by the County Council, which teaching has now extended over the greater part of the kingdom.

— WEATHER IN NORTH BEDFORDSHIRE.—Here in North Beds 9° of frost was registered on the morning of Tuesday, March 30th. April, instead of warm showers, was ushered in by a fall of snow sufficient to clothe the Conifers and new mown verdure in wintry attire. On the 5th 7° of frost was registered.—H. T.

— MARCH WEATHER AT DRIFFIELD.—Mean temperature at 9 A.M. (corrected), 42·37°. Wet bulb, 40·29°. Mean maximum, 48·29°. Mean minimum, 36·8°. Highest, 57·6° on the 21st; lowest, 25·4° on the 30th. Mean of maxima and minima, 42·54°. Mean radiation temperature on the grass, 30·8°. Lowest, 18·6° on the 2nd. Rainfall, 3·41 inches. Number of rainy days, twenty-one. Greatest amount on one day, 0·58 on the 2nd.—W. E. LOVEL, *Observer, York Road, Driffeld.*

— MARCH WEATHER AT HODSOCK PRIORY, WORKSOP.—Mean temperature, 44·5°. Maximum in the screen, 61·8°; minimum in the screen, 23·5°; minimum on the grass, 13·5° on the 30th. Number of frosts in the shade, five; on the grass, fifteen. Sunshine, 95 hours, or 26 per cent. of the possible duration. Rainfall, 2·44 inches; rain fell on eighteen days. A very warm month, similar to last year, but with more rain. Excess rain since January 1st, 2·7 inches. First swallow on 31st.—J. MALLENDER.

— WEATHER AT DOWLAIS.—The following is a summary of the weather here for the past month:—Total rainfall, 7·87 inches, which fell on twenty-six days, with a maximum of 1·32 inch on the 2nd. There was a sharp snowstorm on the 3rd. Mean maximum temperature, 48·1°; minimum, 33·7°; highest reading, 63° on the 23rd; lowest, 22° on the 29th. The wind was in the S.W. and W. on seventeen days, and in the N. and N.W. on seven days. There were seven sunless days. A very rough month, with strong winds the most of the time, often blowing quite a gale. Heavy thunder and strong lightning on the 4th and 16th and 17th.—WM. MABBOTT, *Dowlais, Glam.*

— SUSSEX RAINFALL.—The total rainfall for March at Abbots Leigh, Hayward's Heath, Sussex, was 5·09 inches, the heaviest March rainfall in sixteen years, being 3·01 inches above the average. Total for the three months, 10·45 inches; 3·79 inches above the average. The heaviest fall was 0·89 inch on the 2nd. Rain fell on nineteen days. The maximum temperature was 60° on the 21st; the minimum 28° on the 30th; mean maximum, 51·04°; mean minimum, 38°; mean temperature, 44·52°, which is 3° above the average. A wet and stormy month. Not till the third week was it possible to go on the land to get crops in; since then it has been fairly dry and workable. The 1st of April was extremely wet and cold, with sleet at mid-day. A thunderstorm occurred on the 31st with heavy showers. Vegetation is forward for the season.—R. I.

— HARDY BULB CULTURE IN ENGLAND.—I note on page 268 of your last issue that your correspondent "G. H. H." says I recommend it "as a means of pulling the British farmer out of the quagmire of agricultural depression." This was not, however, my object, for bulb culture, in order to make it a pecuniary success, requires far more intimate technical knowledge than most British farmers possess. Bulb culture is a special thing, and requires special knowledge, as well as a most suitable soil and climate, or the results may be as disastrous in this as in other special systems of cropping the land. Again, a knowledge of the best markets is as essential as production of a good sound article, even although flowers and bulbs do in a sense advertise themselves if seen by those who want them. Now and then a farmer might grow a few bulbs with profit, but it is by no means likely to be a crop likely to benefit farmers generally.—F. W. B.

— THE HORTICULTURAL TRADE OF THE ISLAND OF BUTE.—On Tuesday, the 23rd ult., the Marquis of Bute, the Provost of Rothesay, opened a new post office in that town. Hon. Sheriff Mackirdy, in his speech at the opening banquet, thus referred to the gardening industry carried on in Rothesay and neighbourhood:—"The only considerable trade now is the trade of market gardening and the raising of seeds and plants. Coincident with the decay of other trades he had mentioned, they had this very important trade rising up amongst them. Without making any invidious comparisons, he might mention that of the dozen or so firms engaged, one—that of Messrs. Dobbie & Co.—had risen to a very important position in regard to the trade of the kingdom in its own department. In one year they had sent out no fewer than 140,000 parcels, &c., through the post office, at a cost of £1500 for postage alone. It was a trade which seemed to suit the genius of Rothesay, and they proved it by carrying on a business which depended so much on geniality of weather and good soil."

— ABERDEEN.—An association is being formed, at the instance of the General Council of the University of Aberdeen, for the purpose of diffusing information regarding the wants of the University, and of collecting funds, and applying the same to purposes tending to promote its efficiency as a seat of learning. In the enumeration of the more pressing wants of the University, the second place is given to "a botanic garden, and funds for its maintenance;" and among the lectureships suggested, "forestry" holds a good place. Already a large and influential number of gentlemen have become members of the Association, and the names are still coming in. It is sincerely to be hoped, says a contemporary, that Dr. James W. H. Trail, Professor of Botany in the University, will soon have one of his pet schemes carried out—the establishment of a botanic garden.

— JAPANESE BAMBOO.—Bamboo and bamboo wares constitute an important item in the miscellaneous export commerce of Japan. Bamboo for shipment abroad is grown in several districts, the varieties differing somewhat according to localities. In Hiroshima the black and the spotted varieties grow; the former is produced in Kochi. Bamboo grown in Yamaguchi, Oita, and Ehime belong to the cheap varieties. The cultivation of black Bamboo is carried on extensively in Kochi, where a tan (a quarter of an acre) of Bamboo yields 30 to 60 yen per year. Bamboo is exported to most countries of Europe, and also to America and Australia. The bulk of the Bamboo shipped from Kobe—from which place nine-tenths of the total are imported—goes to England, the varieties being black, spotted, and white. To France and Germany the black and white sorts of the best quality are shipped; while long, bleached, angling Bamboos are in demand in New York.—("Journal of the Society of Arts.")

DEATH OF MR. W. G. HEAD.

AFTER a long period of suffering, often of the most acute character, Mr. Head, who was for eighteen years Garden Superintendent at the Crystal Palace, sank to rest on Saturday last. Though the deceased had been unwell for a considerable time before other than his most intimate friends were aware of the fact, the serious nature of his complaint became evident to those who travelled with him from the Shrewsbury Show last August.

Shortly after that event it was found by the highest medical authorities that Mr. Head's life could only be prolonged by a serious, delicate, and dangerous surgical operation. This was performed, and it has been little short of a marvel that he survived so long.

The late Mr. Head was a genuine gardener. He was born at Worthing in 1837, his father being then a small nurseryman there. In due time young Head was apprenticed to Mr. McEwen, who was gardener to the Duke of Norfolk at Arundel Castle, and subsequently became Superintendent of the R.H.S. Gardens, Chiswick. From Arundel the young student went to Shrubland Park, succeeding Mr. A. F. Barron there, who also went from Arundel. Mr. Head passed to Drumlanrig, where we think he became foreman. He subsequently served in the gardens at Castle Dykes, then at Abernarr in South Wales, and was eventually appointed plant foreman at Chiswick at the time when many plants were required for the conservatory at South Kensington.

From Chiswick he went to Kew, where he was employed in a similar capacity, and from there was sent to make and plant the gardens of the Agri-Horticultural Society of Calcutta at Alipore. He was in India about seven years, and soon after his return to England Mr. G. Thomson resigned his position at the Crystal Palace, Mr. Head being appointed his successor in 1879.

At that time it had become necessary to reduce the expenditure in the garden and pleasure grounds, and Mr. Head was just the man for the emergency. Active, zealous, and industrious, he determined to make the best of the means at his disposal. He worked like a Trojan, and others had to work too, or they were not made happy. He had tons of effete soil removed from the borders in the Palace and fresh brought in; then soon after the plants and trees showed the effects of it in invigorated growth. A gas-light exhibition held in the transept undid all the good he had done and more, for it spoiled the appearance of the noble building for years. Still, Mr. Head did not sit down and grieve, but worked on undaunted to make the best of the position.

His activity at flower shows was well known to many. He did not march about with a wand and direct, but often did as much work as two or three men in moving and arranging the exhibits to produce the best general effect; and when he was very busy it was well not to ask him trivial questions, as he would only have time for short replies, almost incapable of being misunderstood.

The late Mr. Head was a man of energy—of work, but had a warm heart, and was a ready helper in causes of charity and cases of misfortune that came to his notice. He was a quick and excellent judge, highly respected, and was the recipient of a presentation a few years ago, while everything that could be done for him during his period of suffering was done most readily by those who knew him best.

We hear the remains of Mr. Head were interred yesterday—Wednesday, the 7th inst.—at Chiswick.



DENDROBIUM NOBILE.

THERE have appeared in several papers of late references to some magnificent *Dendrobiums* grown by Mr. Moreby, and we now present our readers with a photographic illustration of one of these, with an interesting note relative to them from Mr. R. Scott. Our correspondent says, "I lately saw some splendid *Dendrobium nobile*, grown by Mr. William Moreby, gardener to Mrs. Knowles, Moorhead, Shipley, Yorks. There were four plants, nearly equal to the enclosed photograph. This one measured 5 feet by 3, carrying 1134 splendid blooms, growing in a 16-inch basket. When Mr. Moreby took charge of this place, about five years ago, these plants were small and in very bad condition, but under his care they have made great progress, and are now fine samples of good culture. Many other things are well done in this small but well kept garden—notably *Chrysanthemums*. In fact Mr. Moreby is one of these good all-round men."

PRECEPT AND PRACTICE.

(Continued from page 227.)

APPROACHING now the higher phases of gardening, it may be thought that a very high jump as well as a long one has been made; yet I think that there is no young traveller on our road who should not look down its long perspective as far as possible and be prepared accordingly for all possibilities, and also be early and deeply impressed with the power it is his prerogative to wield if developed. If developed, I may repeat, for it is scarcely probable that any young man who aspires to be a gardener in the fullest sense of the word can be devoid of that inherent power which may—which should—place him upon a high pedestal. That he may be unaware of it is another matter, for until we are called upon to exercise our strength we know it not, nor consequently our weakness. "But," some young critic may inquire, "are we—gardeners of the future—to be landscape gardeners?" Well, you may or may not be called upon as an author in this direction, but you infringe no law of copyright in studying and understanding these advanced chapters of the work; moreover, there are very good reasons why it should be done, and done now.

Who, may I ask, should be able to interpret this great work of Nature and Art if not the gardener? The gardener; from hence I would that our homely title should be fully invested with its comprehensive responsibility. That there are gardeners and gardeners goes without saying. We have on the one hand the "good all-round man," which is to my mind something of a misnomer, being as it were a kind of circular perfection easier to find in theory than in practice. On the other, and relevant to this, are those great masters of natural harmony—those eminent landscape gardeners—to whom we may be only called upon to play second fiddle. Can we do so intelligently without a knowledge of the higher notes we are expected to chord with? By whom have we—gardeners—been oftener weighed in the balance and found wanting than by these highest exponents of the art? By none, for there is none so competent to judge, or so apt to judge, as those who have made it a life's study, and more than once have I writhed under their scathing criticism in print, but acknowledged its justness.

The chief end and aim of life will often appear, from a bothy point of view, to be that of a successful cultivator, which, of course, one must be, but more also, to be a gardener—a gardener as I understand it. Goethe said, "The beautiful is a manifestation of the secret laws of Nature." It should be our constant endeavour, our high aspiration to understand these laws, to wrest the secrets from the master hand. The continual exercise of our faculties in a right direction must lead us upwards and onwards to an accurate conception of that beauty which is the soul of inspiration—inspiration in our work. The simplest and perhaps the highest form of that work is rather to make manifest such beauty as we have than the slavish reproduction in fac-simile of scenes and objects possibly far removed. Imitation of Nature often, somehow, fails to catch the spirit of the thing contemplated, and leaves us after all our labours with what bears indubitably upon its face the word "sham."

Our first study in this direction may be made upon strictly utilitarian lines, where more than elsewhere, if possible, pretence

should have no place. Looking back upon a garden where two years of early life were spent, its perfect arrangements stand out so clear, that it may well serve to illustrate this part of the text. Taking it all in all, it was the best type of its kind for the purpose, and the satisfying impression that it then afforded was so indelibly fixed, that it would be easy now to reproduce from memory alone an accurate plan; easier, perhaps, as it then afforded me my first practice in scale drawing. May I suggest to our young draughtsmen that they should, as they flit from garden to garden, carry away with them neatly executed plans of their temporary spheres of duty, and they might well be retained by interleaving them in the diary, which they would worthily illustrate.

The character of this garden—and gardens are possessed of individuality as much as gardeners are—might be summed up as being that of severe simplicity. A kitchen garden in the broadest sense—viz., a garden for the supply of high-class vegetables, fruits, and flowers for cutting—it was admirably adapted to its purpose, but I doubt if the extensive, well-planned, and well-kept pleasure grounds, from which it was isolated, ever afforded more pleasure to the critical eye. However, comparison would be invidious, for they are distinct types, and the importance of the latter will be considered in due course. We will choose by preference to begin nearer home—nearer to the bothy, which should be the first spot from which to focus observation. Situated on a gentle slope to the south the position had been utilised to form a terrace, one-half of the garden being raised some feet above the lower division, and the wall between the two on the sunny and deeper side was covered in with a lean-to range of fruit houses, the principal lean-to range with its projecting span-roofed houses occupying a position near the entrance to the garden in its lower division. The manner in which the whole area was divided by handsome walks, affording facility for the heavy work in its annual course to be carried on with the least evidence of confusion, and from a general survey of all within the walls the conclusion might justly be arrived at that it was an *edition de luxe* of a kitchen garden; and it was not until one analysed in detail its many parts that the severe simplicity of its lines became apparent. Houses, offices, fruit and vegetable quarters, flower borders, all bore that impress, yet all bespoke the skill which had planned the best for the purpose and placed each exactly where it should be. The chief object in its minute details had in no instance been sacrificed to appearance, and the facility given for high-class gardening which was carried out formed an ideal seldom met with—seldom met with, and that owing probably to circumstances which few can control; but we must have ideals in our lives to work up to, and those who have the clearest conception of them are in a fair way to attain them.

Important and useful as are good general ideas of the above utilitarian part of our subject, it is outside the garden proper a wide field stretches for investigation, and here too are sub-subjects, over which grave errors may arise, from false notions of what constitutes lines of beauty. Examples may be met with in which the one aim appears to have been a predominating anxiety to obliterate all natural landmarks, and replace them by an unstinted expenditure with artificiality. This does not arise from mediocrity or a paucity of ideas, but rather from a superfluity, which swamps simplicity and purity of design. It is as if our harmony could only be executed by the introduction of numerous arpeggios and stumbling staccato passages. As a rule gardeners are seldom called upon to bear the burden, or the sins if such obtain, of designing in contiguity to the castle or mansion. It is a kind of sanctified ground, upon which the architect and landscape gardener meet to blend their several ideas, in order to suitably frame what may range from stately magnificence to the simply pretty picture—from a Trentham or a Chatsworth to a modern villa.

What! Expect our lads of the bothy to understand these things upon the larger scale? Certainly; grasp the meaning now, that you may hereafter be competent to judge of the fitness of things to their purpose, and eventually qualified to form, and to give if necessary, a correct opinion. All such works of art are of course, or should be, a part and parcel of the building, that being here the chief object; but stretching away from this we must keep in sight the near or distant relationship of the multitudinous parts which go to form the beau ideal from whatever standpoint we view it.

Carriage roads, drives, avenues, and paths are very visible lines in the geography of most domains or localities. Possibly we may here learn more from noticing errors, and very probably too our young men may sooner or later be called upon, when taking up a responsible position, to rectify some of them. Such occasions are nearly certain to arise; the trained eye will look for them—welcome them. Outlines on this subject will occupy our next paper with the hope that they may eventually help some to "Take occasion by the hand, and make the bounds of freedom wider yet."

—AN OLD BOY.

(To be continued.)

VIOLAS—SEEDLINGS VERSUS CUTTINGS.

OF the great value of these popular flowers for both spring and summer bedding I need say but little, for they are already firmly established as favourites in gardens innumerable throughout the length and breadth of the land. The cry is no longer heard that they are only adapted for northern gardens during the summer months, for good culture has shown that even in the sunny south few bedding plants give a finer display during June and July than do Violas. It has long been the practice to raise the requisite number of plants for this purpose by inserting cuttings in August and September, and for producing good plants for flowering during the months named I have found no plan to surpass this time-honoured one. Violas are, however, indispensable for spring bedding, and in the majority of gardens where this is a feature it is important to have the beds bright and attractive throughout April and May.

by cuttings. In some instances we find this a drawback, because strong growth is made at the expense of floriferousness, but such is not the case with Violas. If we can only secure early growth we may confidently anticipate abundance of flowers.

When planting a geometrical garden it is often a matter of necessity to have each bed or group of beds filled with flowers of the same colour, because such an arrangement meets with great approval at headquarters, and some may perhaps urge with considerable force that for this reason seedlings are not suitable for the purpose because they cannot be depended upon to come quite true to colour. This difficulty, however, almost entirely disappears if seed is purchased from reliable firms who are already noted for their fine strains of bedding Violas in separate colours. These may be obtained in the following shades of colour:—White, yellow, violet, purple, blue, and mauve. Often not more than 5 per cent. of the plants grown from this seed fail to come true to colour.

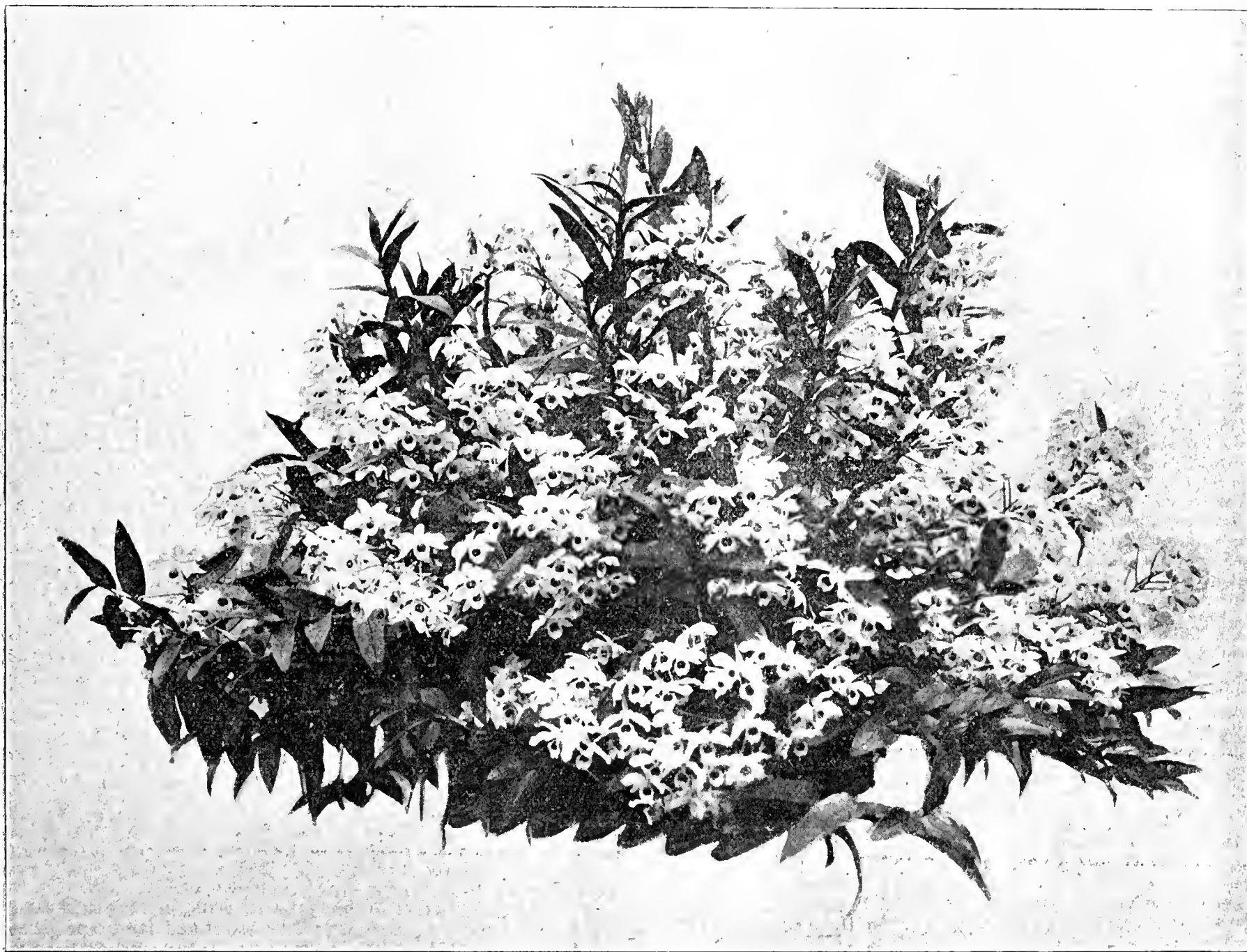


FIG. 64—A FINE DENDROBIUM NOBILE.

When we are fortunate enough to get fine autumns and mild winters Violas raised from cuttings will often flower well during April, but this is rather the exception than the rule, this season, at any rate, judging by the present appearance of plants raised from cuttings inserted last August, they will make little show till the first week in May (I am writing from the Midlands) here. Here, then, is a little difficulty which needs to be overcome, and fortunately I am able to state the way to do it. It is simply by growing seedling plants in all instances where the chief display is required during April and May. At the present time we have beds of seedlings which are flowering freely, while others occupied by cutting-raised plants show only a few half-opened flowers.

Seedlings are, as a matter of course, more vigorous, have more active roots, and are in consequence able to withstand the cold of winter better. They seem to start away at once as soon as we get spring-like weather, whereas in the case of plants raised from cuttings a late start is made, and even then progress is slower than with seedling plants. If we frequently obtained cuttings from other localities I have no doubt that some improvement would take place; still the fact remains that in almost any genus of plants seedlings are more vigorous than those raised

I find the first week in July early enough to sow the seed; this is done either in boxes or on a shady border, and when the young plants are large enough they are transplanted 6 inches apart on borders in the reserve garden. By giving them this ample distance sturdy growth is assured, and weeds can be easily kept down. Should the autumn prove mild, by the time the beds in the flower garden are ready to receive them (which is generally about the end of October) many of the plants will be in flower. It is then an easy matter to select only those that are true to colour. When flower gardens are situated in very bleak positions it is a good plan to defer the planting till March or early in April; the plants can then be lifted with good balls of earth, and with care in planting will scarcely experience a check, and are often in full flower before those planted out in the autumn, when such have been in a bleak situation throughout the winter.

Beds of seedlings should at this season be watched daily, and as soon as a "rogue" is detected remove it at once to the mixed border, and fill up the vacancy with a selected plant true to colour. By attending to these trifling details no one need have the slightest hesitation in using seedling Violas for bedding purposes, and I feel sure that those who, like myself, have found plants raised from cuttings a trifle too late in flower-

ing for spring gardening, may find a way out of their difficulty by adopting the plan above given.

Although Pansies and Violas are now grown in enormous numbers, it seems to me that there is a still greater future before them, as they give such a wealth of flower compared with the little trouble their culture entails.—FLOWER GARDENER.

SPRING IN LONDON.

WHERE are we to look for the signs of spring in the great metropolis? You may find them in park, in garden, in disused burial ground, and other open spaces. Thanks to the County Council and the authorities of the Royal parks, many places where children play and adults walk for recreation are made beautiful by the display of bulbous flowers.

The Embankment gardens are now gay with Hyacinths and Daffodils, the grass looks green and inviting, and the trees will soon be in full leafage. During the dinner hour at midday the Strand and Fleet Street pour forth their living mass of workmen who hie to the Embankment gardens for a breath of fresh air and a peep at the flowers. The gardens make a pleasing frontage to the great hotels and other buildings which fringe the bank of the silent river, and bright patches of colour are everywhere conspicuous. The combinations are well blended, and at one point the smoke-blackened statue of the poet Burns looks down on a circular bed of white Hyacinths, surrounded by triangles alternately blue and red. Inside the gates near Charing Cross patches of mixed Hyacinths look effective on the banks, and in such positions this seems to be a good method of planting.

In spite of the never-ceasing roll of traffic which passes to and fro through Parliament Square, the carefully tended and strongly guarded portions of greensward and flower beds have quite a spring-like appearance. Standing in full view of the seat of their labours are the figures of Lords Palmerston, Derby, and Beaconsfield, with Sir Robert Peel, and round them are large masses of the white Hyacinth *alba maxima*, pink Gertrude, and blues Chas. Dickens and Lord Derby. It is a redeeming feature to see something natural amid so much that is artificial, and from the tops of 'buses people catch the sweet aroma which rises from the beds, and crane their necks to get a peep at the flowers. The grass in Parliament Square always looks well, and though yet early the emerald green contrasts pleasingly with the bright tints of the flowers. No other signs of Nature are apparent, unless it be the house sparrows which hop fearlessly about as though the enclosures belonged exclusively to them.

In St. James' Park one looks in vain for large masses of flowers, as here the scarcity of beds render such mode of planting impracticable. Nor are such required. The patches of Hyacinths and Tulips on the banks and edges of the shrubberies are quite in character with the surroundings. Dying foliage in the grass tell where Crocuses have been gay, and their place now is admirably taken by Daffodils. The pink blossoms of *Megasea crassifolia* are noticed here and there, and Wallflowers are rapidly adding their share to the combination of blossom and bursting foliage. Overlooked from the windows of Buckingham Palace is the Green Park, the gentle slopes of which in their mantle of verdure truly merit the name.

Entering into Hyde Park at the Stanhope Gate, and turning through the flower garden, one is met with a panorama of colour as brilliant as it is bewildering. Perhaps some of the individual spikes of Hyacinths are not so fine as in previous seasons, but on the whole the show is up to the standard, and visitors to London during the next few weeks will do well not to miss it. The admirable blending of colours foretells foresight and good taste, and for variety it is hard to say whether any of the fashion shops in Regent Street could produce anything equal to it. One does not often in private gardens see Daffodils and Hyacinths mixed, yet what a charming combination they make! In Hyde Park *Narcissus princeps* is blended with Hyacinth *alba maxima*, and a little further on the massive foliage and opening blossoms of *N. Emperor* make a charming contrast to the white and blue Hyacinths. In another bed Hyacinth Mont Blanc and *N. rugilobus* are combined and surrounded by a double row of *H. Charles Dickens*. Other varieties are planted *en masse*, and amongst the most conspicuous are the light blue spikes of *Couronne de Celle*, *Orondates*, dark blue, with such well-known kinds as Lord Derby, General Havelock, Czar Peter, and La Grandesse.

Not the least conspicuous are the beds of *Narcissi*, though it is questionable whether they are not more pleasing when planted in conjunction with Hyacinths. Sir Watkin maintains its well-deserved reputation for floriferousness, and indeed is charming. Just a mention of *N. Golden Spur*, *Horsfieldi*, and *maximus*, which give variety, and show beyond argument how indispensable in a collection of spring bulbous flowers is the nodding Daffodil. Tulips will be all aglow when Hyacinths are on the wane, and thus the show is prolonged. Some of the most forward are already showing bloom, particularly *Keizers Kroon*, which is planted in large masses. Other beds are filled with *Canary-bird*, *Joost van Vondel*, *Duke of York*, and varieties of equal standard. Little blue *Scillas*, *Daisies*, and *Wallflowers* all add their share, and interesting are the remarks passed by the varying sorts and conditions of men and women who perambulate daily between the Stanhope Gate and the Marble Arch.

Regent's Park, ever famous for its Zoological and Botanical Gardens, its avenues of giant forest trees, and delightful walks, has now another feature of more than passing interest—its spring flowers. The authorities by judicious planting and careful arrangement have created a reputation in this direction, and this season's display bids fair to maintain it. Hyacinths are all aglow, as soon will be the Tulips, Wallflowers and

Doronicums. The long lines of Horse Chestnuts are rapidly putting on their mantle of green, and will look all the brighter ere their growth becomes sullied, as soon it must do, amid the grimy surroundings. One does not have to go quite close to see that the circle masses of gold are caused by the tall flowers of *N. Horsfieldi* and *N. Sir Watkin*. It is possible to notice a few diversions from previous years, one of these being the planting of several large beds with mixed Hyacinths. The effect is pleasing, and is rendered more so from the fact that the surface is undulating, this doing away with the flatness that is sometimes complained of. Along the narrow borders that run the length of the garden Hyacinths are dispersed in miniature triangles, Robert Steiger being particularly fine. *Narcissus Emperor* and *Wallflowers* make a pleasing combination in a large three-cornered bed, and a similar area is devoted to the telling flowers of *Tulip Keizers Kroon*. Among other beds of Hyacinths planted *en masse* it is easy to discriminate the light blue of Lord Derby and the pink of Gertrude.

To the lover of mixtures the banks and slopes will have a particular interest. These Hyacinths, Daffodils, Tulips, *Scillas*, and the like are vieing with each other for prominence, and dispersed without any attempt at classification in that easy natural way which gives such favour to this mode of planting. Every adaptable position is beautified, or will be in due course, as many flowers have yet to unfold. Pink *Megaseas* are telling of their presence here and there, and the permanent Daffodils in the grass nod gracefully in the sunlight. As one turns from the masses in the flower beds to these seemingly wild breadths which stretch over the carpet of green one is undecided which makes the more pleasing picture; both have their bright features. So much for the spring flowers in the heart of the great city; but what of those that adorn the County Council parks, and lie dotted about in the outer radius! Space forbids mention of them here, but they shall form the subject of future notes.—G. H. H.

BERWICK HALL.

BERWICK HALL, Shrewsbury, the seat of W. G. Phillips, Esq., is a charming residence, elevated upon terraces overlooking the Severn, and a lovely span of country backed by hills clothed with fine woods. It is surrounded with beautiful gardens and extensive pleasure grounds, making it a delightful home, and a most pleasant place to visit.

Mr. Bradley, from the Wergs Hall Gardens; Mr. Simpson, The Mount Gardens; and myself, spent a very enjoyable day in looking over the grounds inspecting the grand collection of *Dendrobiums* and other Orchids. Several hundreds of the former were arranged in the flowering house ready for the photographer, and it was glorious sight. All lovers of Orchids will be able to judge when I tell them what varieties were displayed there. Below are a number of varieties that were noticed:—*Dendrobium nobile*, *densiflorum*, *Wardianum*, *W. candidum*, *W. giganteum*, *D. Farmeri*, *thysiflorum*, *pulchellum*, *Pierardi*, *Parishi*, *nobile nobilium*, *N. intermedium*, *formosum giganteum*, *Findleyanum*, *fimbriatum oculatum*, *Falconeri*, *Devonianum*, *Dalhouseianum*, *crassinode*, *chrysotoxum*, *chrysanthum*, *bigibbum*, *superbum*, and many others. Mr. Burrows, the clever and genial gardener, escorted us through the Orchid and other houses, explaining all that was interesting and instructive, and the methods he had adopted to bring his Orchids to that state of perfection we found them in.

There are four very fine vineries, and the Vines were all one could desire at this period of the year. Everything in the kitchen garden was in excellent order and very clean. On the south wall an orchard-casing ran the whole length. We were told that no fruit of any importance has ever been grown. This could not have been the fault of the casing or its position; it would be impossible to have better. The fault must have been in the border and at the roots, and this is where Mr. Burrows has gone for his remedy. Excellent are the results. Good wood, plenty of bloom, and the prospects of a heavy fruit crop.

A stroll along shady walks, passing naturally formed gardens, rockeries, and by beautiful undulated lawns dotted with clumps and single specimens of flowering and foliage shrubs and Conifers, across terraces, here and there getting a view of the most beautiful mansion, brought us to the river bank of the Severn. Here one could stroll for miles, up hill and down, having all the while many interesting scenes to view.

It was pleasing to hear all the while how much interest Mr. and Mrs. Phillips took in horticulture and forestry, also in their workpeople. While I believe Mr. Burrows is the right man in the right place, I cannot but think how fortunate he is in having the honour of serving such employers. This was a pleasure trip, not taken with the view of writing a report of the place, otherwise several columns of interesting reading could have been penned.—G. A. BISHOP.

[We have received from Mr. G. Burrows a photograph of the Orchid house referred to by Mr. Bishop. This shows plants flowering splendidly and in the best of health, but the picture is unfortunately too dense for successful reproduction.]

THE QUALITY OF POTATOES.—Many years ago a Potato grower and buyer informed me that he had noticed that the kidney Potato grown in his parish turned black on those lands on which woollen refuse from the blanket manufactories was used as manure. Now, as wool decomposes into nitrogen, this corroborates "W. G.'s" opinion, that the discolouration is caused by the use of nitrate of soda. This did not occur in dry seasons, as the wool not undergoing decomposition would fail to supply nitrogen to the plants.—OXON.



ROSE SHOW FIXTURES FOR 1897.

- June 17th (Thursday).—Colchester and Ryde.
 „ 18th (Friday).—Portsmouth (N.R.S.).
 „ 26th (Saturday).—Windsor.
 „ 29th (Tuesday).—Canterbury, Sutton, and Westminster (R.H.S.).
 „ 30th (Wednesday).—Croydon.
 July 2nd (Friday).—Crystal Palace (N.R.S.).
 „ 7th (Wednesday).—Glasgow and Reigate.
 „ 8th (Thursday).—Bath, Gloucester, and Woodbridge.
 „ 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 „ 22nd (Thursday).—Halifax and Trentham.
 „ 27th (Tuesday).—Tibshelf.

The above are the only dates definitely fixed that have as yet reached me. I shall be glad to insert in the next list, which will be issued about the middle of April, any further fixtures that may be sent me.—
 EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts*

ROSE NOTES.

THE interesting note upon budding Roses so early as February 16th, which "W. R. Raillem" records in your issue of April 1st, inspires a few notes upon seasonable work in the rosery. By the way, I may say that this early budding is by no means new to us in the south coast counties, and although I have not budded so early as February 16th it has frequently been done in March. Hedge Briars that have stood over from the previous summer have only to make a little growth at the points of their branches to admit of the bark lifting freely. It has been our practice to utilise such stocks for new Roses. The plants are pushed on under glass, and the resulting buds taken as soon as we can lift the bark of the Briars. This was begun in March during the present season, and many will be budded by the time these notes can appear.

Why should we not use the Hybrid Sweet Briars as stocks, seeing they are very vigorous, hardy, and more precocious than the normal type of Sweet Briar? At present (April 2nd), and for some fortnight past, it has been easy to lift the bark of these early Roses. But it may be asked, Where is the benefit of this early insertion of buds? In the case of new or very scarce varieties we can often secure a plant from a bud that would otherwise be lost so far as the increase of stock was concerned. My plan has been to cut back close as soon as the bud was firmly set, applying a little French or home-made grafting wax to the wound immediately. This conserves the whole of the sap for the benefit of the Rose bud, which soon pushes into growth, and is oftentimes little behind a maiden plant of the same variety that was budded the previous summer.

Taken all round our Roses are not at all forward for early April, and unless we get more sun and less cold winds I fear the earlier date found necessary for the Portsmouth gathering of the National Rose Society will prove too early to secure even our best garden and single Roses in their full beauty. We generally look to the early or Southern meeting of the N.R.S. to supply the finest of our so-called garden Roses. Why "garden Roses?" and why not "singles and semi-doubles?" They do not include such as Marie Van Houtte, Général Jacqueminot, Gloire de Dijon, and others, certainly much more deserving of the name Garden Roses than the majority of those now classed under that heading. But if we venture into the realms of classification we are in trouble immediately we step over the border line, and many rosarians, as well as the all-round florist, must be weary of the subject.

Pruning and spring mulching should be completed by now, and it is high time we cut back all budded stocks, whether dwarfs or standards, and also commence cutting away the numerous eyes certain to break from all young hedge Briars. Dwarf maidens need a careful examination at the same time. Our plan is to remove a little of the soil when budding dwarfs, and as the stocks are planted very shallow, a little soil being drawn up to them so that they have the appearance of Potatoes earthed up, there is little to remove before the bud can be placed well down upon the roots of the stock. This earthing keeps the bark soft and pliable, so that it is much easier to lift when inserting the bud. We prefer the bud to remain exposed all through the winter, having experienced better results than when covered up. This appears strange, because we find earthing up of dwarf plants a great, in fact a perfect safeguard against injury from frost to the lower eyes, and it would seem that the same rule should hold good with dormant buds upon dwarf stocks. But such has not been our experience, or that of our neighbours.

But I am wandering somewhat from seasonable work. I wished to point out the need of carefully looking over dwarfs for suckers, even to going over them three or four times before drawing any of the surrounding soil around the Rose bud once more. Choose a time when the ground works well, or go over the plants and place a little prepared

compost around the growing bud after it has made some 4 to 6 inches. The Rose growth is apt to swell very rapidly, and oftentimes overruns the stock in this direction. A dressing of soil not only aids the Rose and stock to unite better, but induces own shoots from the Rose.

Be careful to stake early, and also to secure the maiden growths upon standards. In the latter case it is undoubtedly best to have a stake that will support both Briar and Rose. Trade growers generally use split sticks of from 2 to 3 feet in length, according to the vigour of the variety. These are securely fastened to the Briar stem some foot or so below the maiden growth, and the latter tied to the stick projecting above. With the amateurs' few a stake is not so much an object from point of cost as with those growing several thousands, and I recommend this in preference. Some consideration should be given to the relative heights of varieties. To put the same stake to La France or Baroness Rothschild that would be suitable for Madame Gabriel Luizet or Margaret Dickson is absurd; while if they were reversed the support would be quite useless to the two last named varieties.

Insects will soon be prevalent. I noted many aphids in sheltered corners during the few sunny days of late March. Soon, too, we shall have the Rose maggot or grub, more than one species of caterpillar and other insect pests at our favourites. There is nothing more successful than hand-picking in this case, and the more prompt we are to do this the better it will be. It does not take long to look over a few Roses if one take it in hand before the enemy has become numerous, and three or four brief visits are more effectual besides being less labour in the end.

Under glass we are now in full beauty; even an unheated house is carrying a fine show of bloom. The chief points are to battle steadily and perseveringly against insects, and to be sure that only mild measures are used. These will be ample if one persevere, and more than ever so if early measures were taken. This is the secret of success in all plant culture. Of course it is easy to kill the insects at any time, but it is far from an easy task to do so when well established without great risk of serious injury to the plant as well.

All Roses in pots will enjoy a little liquid manure now, and climbers turned into borders or tubs should have a liberal supply. Ventilation is an important item at this season. Cold winds are so often accompanied by bright sun, the temperature rises rapidly, and yet we fear to ventilate on account of a slight draught of keen air. Afford a little ventilation early, instead of delaying until the sun has caused the temperature to rise too high. Of course everyone is aware that draughts are the chief source of mildew, and will be careful to apply all ventilation upon the sheltered side.

Even a slight shade is admirable should clear weather set in. This need only be very slight indeed, just enough to break the burning power of the sun, and yet not detract from its light and influence. In a house devoted to Roses a slight damping down of liquid manure is a great help to the foliage late in the afternoon and early in the morning.—
 PRACTICE.

EMIGRANTS' INFORMATION.—The April Circulars of the Emigrants' Information Office and the new annual editions of the Handbooks show the present prospects of emigration. This is the best season of the year for emigrants to go to Canada, but there is no demand for anyone except farmers with capital and experienced farm labourers. All emigrants are specially warned against paying premiums or other fees to any agency or person in this country for situations as farm pupils with farmers in Canada. They should in all cases apply to the Canadian Government Agents here or to this Office. In New South Wales the number of unemployed persons is now inconsiderable, and the prospects of the colony generally are improving. In Victoria the supply of labour in Melbourne, Warrnambool, Sale, and elsewhere is sufficient, except that there is an opening for good farm hands in parts. The drought has greatly affected the harvest, and it is estimated that the average yield of Wheat will be under 5 bushels an acre; better prices, however, will be received. In accordance with the recommendations of the Mildura Commission the Government has made an advance of money to the settlement on certain conditions. In South Australia, owing to the continuance of dry weather, farms, orchards, and fruit trees have suffered considerably, and the demand for labour is small, though there has been some demand for married couples without encumbrances for station, farm, and domestic service. Queensland has made fairly satisfactory progress during the last year, and the able-bodied population is generally well employed. There is a fair demand at Rockhampton for practical farm labourers and ploughmen. In Western Australia the population, though rapidly increasing, is still not more than 140,000, and therefore the demand for labour is necessarily limited. In New Zealand all kinds of employment at Auckland have been plentiful, and all the factories and mills are being worked full handed. In most other parts also of the colony, both in large towns and in country districts, employment has been good, as is usually the case during the summer season. Shearers, harvesters, and farm hands have been equally busy, but with the completion of shearing and harvesting the demand for these has declined. According to a large number of official reports from all parts of Cape Colony, dated the end of 1896, the cost of living has considerably increased owing to drought and the approach of rinderpest.—*Emigrants' Information Office, 31, Broadway, Westminster.*

THE CELERY FLY (TEPHRITIS ONOPORDINIS).

GREAT injury is frequently caused to Celery and Parsnips by the larvæ of the Celery fly. In mild seasons they are found, however late the Celery is dug up. In one bad attack, which occurred in 1895, larvæ were found in the leaves as late as the beginning of December. Parsnips are also attacked by this fly in some seasons, and the affected roots are small, much forked, and generally of a bad shape.

The larvæ make mines or passages in the leaves in their parenchyma, and feed upon the soft, juicy substance. The leaf soon contracts, whitish patches appear, in which larvæ can be found, and after a short period it shrivels up, and is utterly useless to the plant. In the case of Celery plants thus infested the stalks or stems, that have been earthed up in order that they may become blanched, cannot grow and fill out properly. Sometimes the plant is killed, or the Celery is small and green.

The larvæ not only make mines in the leaves, but they get down into the blanched Celery stems. They have been found there in company with the larvæ of the Celery stem fly, *Piophilæ api*, between the folds

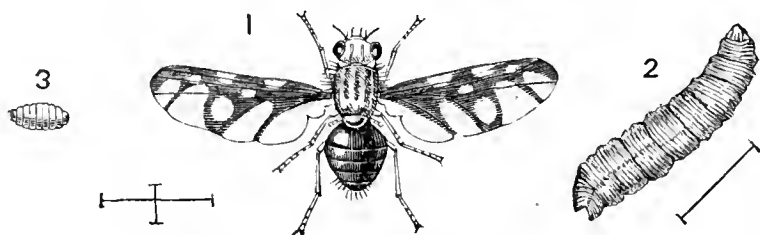


FIG. 65.—1. Fly magnified. 2. Larva magnified. 3. Pupa, natural size. Lines showing natural size of Fly and Larva.

close to the somewhat bulb-like end, evidently feeding upon the sweet juice. Their passage down the stems can be distinctly traced by rusty marks, which materially injure the appearance and the flavour of the Celery, and in some cases cause it to rot.

LIFE HISTORY.

The fly (fig. 1) first appears in April; it is very small, only about one-eighth of an inch in length, with a wing expanse of nearly half an inch. It is tawny brown in colour, or, as Meigen terms it, "honey yellow," with the under part of the body light coloured. The wings are iridescent, with oblique lines of brownish or rusty spots running through them, and the poisers are dark yellow. The six legs are dark yellow and covered with black hairs. When the fly is at rest upon the plants its wings are folded in an upright direction.

The female fly, furnished with a long ovipositor, is larger than the male. It places its eggs singly upon the upper sides of the Celery and Parsnip plants. Many eggs are laid by one female. The eggs are hatched in about six days, and the larvæ from them at once bury themselves in the leaf tissues and form mines within them. They are very light green, without legs, and the dark line of the alimentary canal is visible along the back. The body is thick, pointed at the head and squared off at the tail end, upon which there are black tubercles. In about fourteen days the larva changes to a pupa, either remaining in the leaf or falling to the ground. From the pupa, which is oval, of a light yellow colour, barrel-shaped, much wrinkled, and about one-eighth of an inch long, the fly comes in a few days and establishes new generations. There are several broods or generations in the course of the summer, and the pupæ of the last generation remain in the earth and in pieces of leaf and stalk.

MODE OF PREVENTION AND REMEDIES.

As many of the pupæ remain in the earth it is most essential when the Celery crop has been taken from the trenches that the earth should be carefully levelled and well dug, and the upper surface buried deeply to prevent the flies from coming up. This should also be done in the case of infested Parsnips. A good dressing of finely powdered lime or gas lime might be applied with advantage.

Every particle of foliage and stem must be deeply buried, though it is far better that these should be collected and burnt directly the Celery or the Parsnips have been dug. All this should be burned, because if it is put in lumps or upon compost heaps or mixens not in active fermentation, it is most probable that pupæ will be carried out with manure for Celery or Parsnips or other crops grown near. This pest will not be stamped out unless Celery and Parsnip growers are most particular in destroying the remains of infested plants.

Thistles also should be kept down. Curtis says that the fly infests the "Cotton Thistle," *Onopordum acanthium*. Meigen and Macquart both say that it infests Thistles in France and Germany.

In the early days of this infestation it would be possible to check the attack considerably, at all events in gardens and allotment ground, by pinching the infested leaves, which may be detected at once by the peculiar marks upon them, so as to kill the larvæ within them. This would be difficult where Celery and Parsnips are grown upon a large scale. The plants should be examined when they are quite small, as the flies appear very early in favourable seasons. Pinching must be carefully done, so as to damage the leaves as little as possible, especially when they are small.

It is desirable to force rapid leaf growth where there is a bad attack. Nitrate of soda mixed with a little agricultural salt will effect this.

Finely powdered soot or lime scattered over the plants while the dew

is on them is likely to prevent the flies from laying eggs upon the leaves. A mixture of finely powdered soot and lime in the proportion of 1 bushel of lime to 3 bushels of soot has been found efficacious if put on when the leaves are damp from dew or rain.

Spraying the plants with various washes has proved to be beneficial. A mixture of paraffin and softsoap and water, at the rate of a quart of paraffin and half a pound of softsoap to 10 gallons of water, has been found very effective. The paraffin and softsoap must be thoroughly incorporated in a small quantity of hot water before being mixed with the cold water. A wash made with a pint of carbolic acid and half a pound of softsoap to 10 gallons of water has been tried also with advantage. These solutions should be sprayed lightly on the plants by means of a knapsack machine, and will prevent the flies from laying eggs upon them. It will be necessary to spray twice or more often during the season.—(Board of Agriculture Leaflet, No. 35)

PRESCOT HOUSE.

THE gardens at Prescott House are famous for the fine representative collection of hardy fruits, as well as high-class Grapes, Camellias, and Orchids. To use a garden phrase, other things are done well, but these are specially noteworthy. Prescott House, the home of W. Holcroft, Esq., which is one mile from Stourbridge, is a well appointed country residence, fitted up more for genuine domestic comfort and elegance than mere external appearances. The walls are mantled with a wealth of foliage, including a large specimen of *Magnolia grandiflora*, *Garrya elliptica*, *Crataegus pyracantha*, *Roses*, *Ampelopsis*, and *Clematis*. On a border near at hand there was a choice selection of Conifers, including *Thuia occidentalis ericoides*, *T. occidentalis Hoveyi*, *T. occidentalis pendula*, *T. Vernæueana*, *T. Wareana*, *Thniopsis borealis*, *T. dolobrata variegata*, and *Eurya latifolia variegata* with its beautiful golden foliage.

Of finer and larger specimens of Conifers in different parts of the grounds we noticed *Abies Remonti*, *Cupressus macrocarpa*, *C. Lawsoniana argentea*, *C. Lawsoniana erecta viridis*, *C. Lawsoniana alba variegata*, *Juniperus chinensis*, *J. chinensis aurea*, *J. virginiana glauca*, *Prumnopitys elegans*, *Retinospora pisifera*, *R. plumosa*, *R. plumosa aurea*, *Taxus baccata*, and *T. baccata aurea variegata*. Skirting the pleasure ground there was a neat flower garden, the beds laid out in geometric fashion, the edgings and divisional lines being formed of *Sedums*, *Antennaria*, and *Saxifraga*, all indicating how exquisitely beautiful it would be when arranged in its bright summer attire, though one of the wildest days we had in March was not the time to see it to advantage. In close proximity was the hardy fernery, where many choice Ferns found a congenial home. In one corner of the fernery there was a large *Aralia Sieboldi*, which had occupied the same position for twenty years, a sufficient proof of its hardihood.

We now enter the walled-in fruit garden, and here, although as we have stated above, it was a cold wintry March day, had time permitted we could have lingered long over the fruit trees. These are to be seen under every form and feature of training. The wall trees were perfect specimens of the pruner's and trainer's art, as were the espaliers around the garden walks. There were also numerous bushes and pyramids, 8 or 9 feet high, all smothered with myriads of blossom buds. Upright cordons were in good evidence, and filled up many a nook and corner that would otherwise have been vacant. The walls on three sides of the garden were furnished with handsomely trained trees, while on the south side were the vineries and other glass houses. Amongst the Pears on the walls there were *Beurré Superfin*, *Glou Morceau*, *Beurré Rance*, *Beurré Bachelier*, *Jargonelle* (smothered with fruit buds), *Swan's Egg*, *Winter Nelis*, and *Beurré Clairgeau*; this latter Pear, though generally not considered more than second or third rate, comes good at Prescott, and a small tree, covering 42 square feet of wall, produced 42 lbs. of fruit, fine Pears weighing 5 lbs. 12 ozs.

As espaliers there were *Maréchal de Cour*, *Madame Treyve*, *Doyenné d'Été*, *General Todleben* (a good November Pear), *Fondante d'Antonne*, *Flemish Beauty*, *Zephirin Grégoire*, *Beurré d'Amanlis*, *Catillac*, *Passe Crassane*, *Bon Chrétien*, *Autumn Bergamotte*, *Knight's Monarch*, *Thompson's*, *Darondeau*, *Nouvelle Fulvie* (a late delicious Pear, in use during January and February), and *Olivier de Serres*, which was in fine condition up to the time of our visit. A good late Pear is a desideratum, to come into use when the bulk of the autumn Pears are over. *Passe Crassane*, *Nouvelle Fulvie*, and *Olivier de Serres* are amongst the best to fill up this gap, and to give a supply of fruit during January, February, and into March.

Then as pyramids there were good specimens of *Beurré d'Anjou*, *Huyshe's Prince of Wales*, *Albertine*, *Marie Louise*, *Louise Bonne de Jersey*, *Swan's Egg*, *Beurré Giffard*, *Souvenir de Congrès*, *Beurré Diel*, and *Winter Nelis*. The cordons included *Duchesse d'Angoulême*, *Pitmaston Duchess*, *Seckle*, and *Easter Beurré*. Of Plums on the walls there were *Bryanston Gage*, *Orleans*, *Green Gage*, *Coe's Golden Drop*, *White Magnnm Bonum*, *Prince Engleheart*, *Cox's Emperor*, *Pond's Seedling*, *The Czar*, *Victoria*, and *Goliath*. On the various squares we noticed good breadths of *Strawberries*, *Raspberries*, and other small fruits, all in good condition, and promising an abundance of fruit.

Turning into the vineries, the early house was started and beginning to show its fruit. The Vines in the late house were just swelling their buds. In each house there was the usual run of sorts, and to all appearance, when the fruiting time comes round, will be able to give a good account of themselves. The back wall of each house was draped with fine *Camellias*, reaching to the top of the house, and all in most

luxuriant health. The varieties cultivated were imbricata, anemonæ-flora, alba pleno, Mathotiana, Beali, Countess of Derby, fimbriata alba, Parini, Fordi, and Victoria antwerpensis.

Two small houses devoted chiefly to Orchids contained some good examples of the popular varieties of Cattleyas, Cypripediums, Dendrobiums, Vandas, Lælias, Angræcums, Aërides, Phalænopsis, and many others. The Orchids looked well cared for, and bore unmistakeable traces of skilful cultivation.

In an adjoining greenhouse were good Cinerarias, and other useful plants for house embellishment, and in the Peach house were nicely trained trees of Alexander, Early Beatrice, Early Louise, Royal George, Bellegarde, Grosse Mignonne, and Pitmaston Orange Nectarine. On a shelf close to the glass was the collection of Chrysanthemums in small pots, in which were all the leading sorts, new and old. Whilst Mr. Stephens studies the wants of the Chrysanthemum, and grows his plants and flowers to a state of high perfection, it is not to the detriment of other things, for every plant, whether it be inside or out, is equally cared for and grown to the best advantage.

In the kitchen garden proper there were useful frames for forcing and plant culture, the usual flats of vegetables, and in the orchard a collection of the leading sorts of Apples, including between thirty and forty of the best and newest sorts in cultivation. It would only be a repetition of what is continually appearing in lists of the best Apples to enumerate the sorts; this may, however, be said, the trees were healthy and vigorous, and such as any gardener and his employer might be equally proud of. In conclusion, the gardens were in the best state of keeping, and reflected the highest credit on the skill and care of Mr. Stephens, and were fit for any gentleman to visit.—QUINTIN READ, *Evesham*.

UTRICULARIA RHYTROPHYLLA.

WHEN well grown some of the most notable of the Bladderworts are exceedingly pretty, and should be more frequently seen in cultivation. One of the best of these is that depicted in the illustration (fig. 66), viz., *Utricularia rhytrophylla*. The specific name is apparently derived from a Greek word referring to the long, narrow, strap-like leaves, but the chief character of the plant rests in the flowers. These are large, of a fine purplish hue, with an orange-coloured projection at the base of the broad rounded lip-like portion, and are borne in slender graceful racemes from the base of the plant. It thrives well in small baskets of peat and sphagnum suspended from the roof of an intermediate house.

IN METROPOLITAN NURSERIES.

AMARYLLIS AT CHELSEA.

AMARYLLIS or Hippeastrums, it matters not which you call them, for by either name they are greenhouse bulbous plants that produce richly beautiful displays of flowers at this period of the year. To the botanist they are Hippeastrums, but with the gardener the older name still holds good, and finds most favour. As it is to the latter that the *Journal of Horticulture* speaks more particularly, their cognomen shall stand at the head of these brief notes, written to call particular attention to one of the finest collections of Amaryllis in the country—that of Messrs. J. Veitch & Sons, Ltd., Royal Exotic Nursery, Chelsea. Here may be seen plant after plant, flower after flower, all in the full glow of health, notwithstanding adverse atmospheric conditions; indeed in such state as to prove their adaptability for town culture, while at the same time pointing conclusively to the careful attention that is bestowed upon them by Mr. John Heal, the grower. These plants have many desirable attributes, a fact which would warrant their being far higher in favour than is the case at the present moment.

The Chelsea plants represent practically all stages from the juvenile that has not yet flowered to the oldster that is relatively speaking getting hoary with honourable age. Then there are others that are passing or past their prime of flowering for this season, while many more are just pushing up the stout stems at the apex of which will be the handsome blooms. The extension or elongation of the flowering season is simply a question of culture with which every practical cultivator is familiar, and it is worthy of adoption by reason of the beautiful spectacle that can be produced even where only a dozen specimens are at the summit of their beauty at the same time. Successional drying off and successional starting are the backbone of the system referred to.

Amongst the hundreds of plants to be seen, including some of the best varieties in cultivation, and representing years of patient labour in hybridisation, the colours most noticeable are shades of red, though persistent efforts are still being made to widen the range. In this direction there is one break that must be reckoned with in the future, for it provides that encouragement which is dear to the heart of all. It is found in a new one named Arona, in the colour of which yellow may be distinctly seen, though it is not yet such as would justify an appellation as Golden Queen. It is a step onward, as everyone will admit. The ground colour is pale green perceptibly flushed yellow, and with orange red markings at the edges of the bloom, which is, in comparison with some of the others, a trifle faulty in form. However, the shape can readily be had; it is the colour that is the difficulty over which the experimentalist has to rise, and it is to be hoped will rise.

The variety just alluded to is the most distinct break in the collection, but some of the others, both new and old, are of the very best quality, both in respect of colour and of form. Some are intensely rich in the depth of colour, while others are of exquisite softness. Mention may be made of a few of these, commencing with Surprise. This is a splendid variety, of which the ground colour is white, and the veins bright red. The form and substance leave little to be desired. Richly beautiful are the very deep red flowers of Ora, while those of Tamora—velvety crimson, suffused with lake—are no less attractive. Very charming is Florizee, with its bright red streaks on the white ground; and the same may well be said of Mephista, which, though small, is of great merit; the colour is salmon rose.

Of the most intense shade of velvety crimson is Euphrasia, but it is

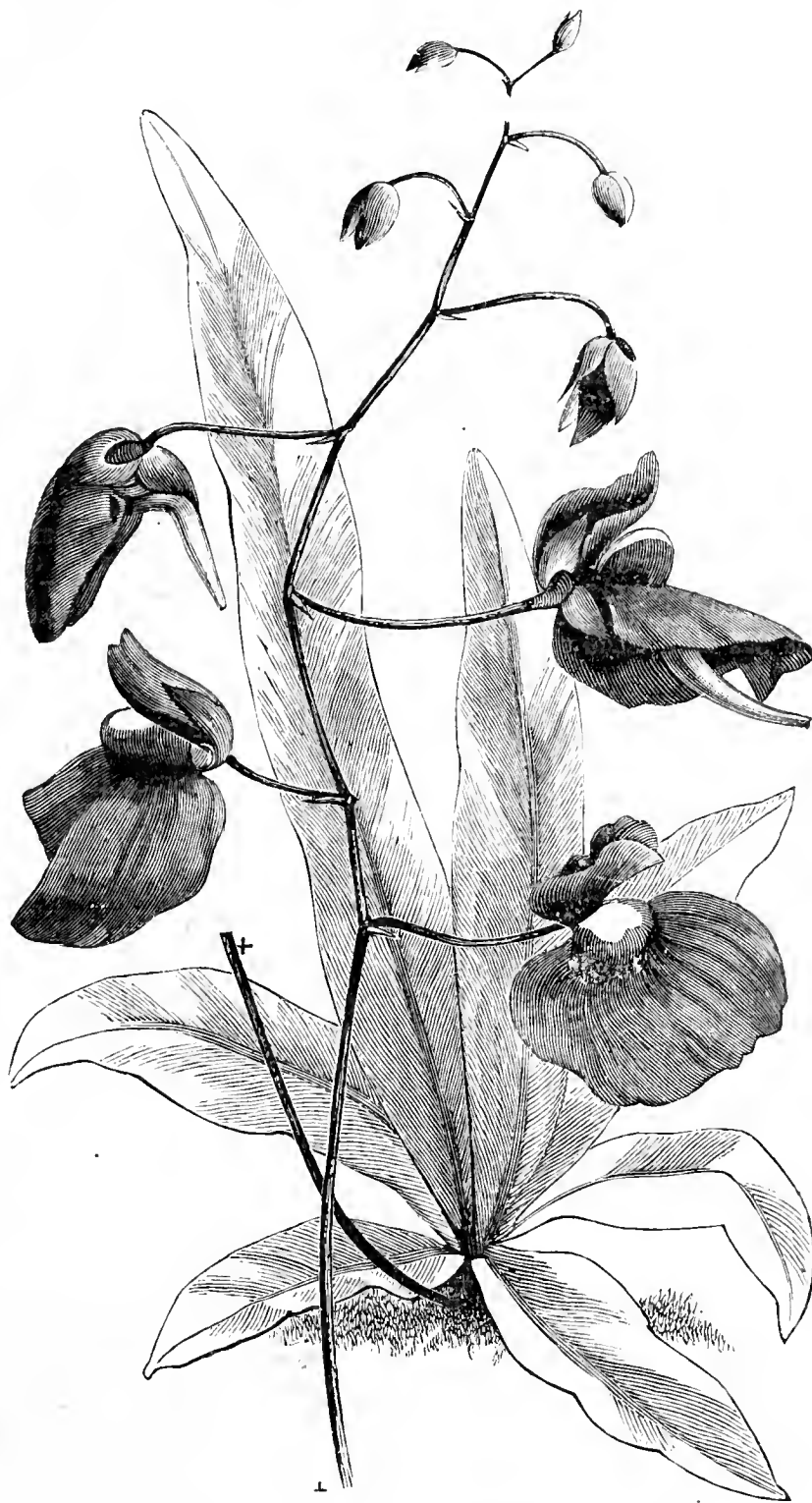


FIG. 66.—UTRICULARIA RHYTROPHYLLA.

not more conspicuous than Scio, with its bright, shapely, crimson scarlet blooms. Others of more than ordinary merit are Hidalgo, Cythera, Camis, Atalante, Nysa, Francisca, and Emin. These are only a few of the comparatively new ones, but they are all to which reference can now be made.—D. R.

CLIVIAS AT FOREST HILL.

It cannot yet be said of Clivias that they have become really popular plants, but it is certain that their culture is becoming more and more extended, probably by reason of the many improved varieties that are being yearly introduced by hybridists of note. It is, too, equally a fact that they are deserving of far more extended attention both by professional and amateur cultivators, for they are amongst the very easiest of plants to grow, and moreover the price asked for them is by no means exorbitant, though some of the new and scarce are perhaps beyond the very small amateur. A large portion of the credit of popularising the tuberous-rooted Begonia is universally and deservedly accorded to the veteran hybridist Mr. John Laing, and if the Clivia ever command even a moiety of the esteem claimed by the more gorgeous plant just mentioned the same gentleman will find his renown still more enhanced.

The firm of Messrs. J. Laing & Sons has long been striving to widen the favour now given to the *Clivia*, and it is to be hoped that its efforts will be crowned by success.

If anyone desire a good object lesson in the effect that may be produced by a collection of *Clivias*, let him hasten to make a pilgrimage to the Stanstead Park Nurseries, when a very fine display will be the certain reward. There may be found a large span-roofed structure almost wholly devoted to them, comprising plants of all sizes, from those that are now blooming for the first time to others that are giants in comparison, and have seen many years of growth. The veterans are mainly upon the central staging of the house, with the juveniles arrayed along the two side and end stages. The broad, leathery, clean, strap-like leaves of dark glossy green hue set off the flowers, which, as everyone knows, are produced in circular heads of considerable size on a stout footstalk, to the best advantage, and force one to wonder why they are not more grown.

For the conservatory, the greenhouse, or the window *Clivias* are admirably adapted, they not requiring either very much heat or attention, the most important points in the latter direction being good judgment in watering and perfect cleanliness. They cannot be said to be plants highly susceptible to visitations from insects, for they are not; but it is nevertheless a fact that if the leaves are frequently sponged enemies are prevented obtaining a hold, the pores of the leaves are kept constantly open, and the plants thrive far better accordingly, for to all plants, the same as to ourselves, the maintenance of perfect cleanliness is one of the royal roads to health.

Besides bearing in mind the easiness of culture the intending grower should make a memorandum of the fact that *Clivias* last for a very considerable time in flower—several weeks in fact. This alone should prove a distinct recommendation in their favour. Then the grower who thirsts for fame can amuse himself by seeking new varieties by the aid of cross fertilisation. There is abundance of room still left for the extension of the range of colouration, and constant experiments carried out on rational lines are practically sure to eventuate in something distinct and good. So far the colours are mainly shades of orange, though some are almost scarlet, so that a pure white or a yellow would be hailed with delight, though it is probable, judging by the progress that has been made so far, it will be some time ere either of these is given to us.

To name and describe all the varieties would be impossible, so the selection shall be limited to one dozen, each of which will, of course, be good. *Duchess of York*, reddish salmon, with a lemon yellow throat, is worth watching, as is the shapely *Orange Gem*. *Firefly* is large and rich in colour, while *sanguinea*, of which the colour is described by the varietal name, is very fine. Then there are *Comet*, *Mrs. John Laing*, *Mrs. Davidson*, *Princess May*, *Vesuvius*, *Princess of Wales*, *Sunrise*, and *Fascination*, all decidedly above the average in size, colour, and shape, and worthy of being grown everywhere.—VISITOR.

DAFFODILS AT DITTON.

PERHAPS no one has done more to popularise the Daffodil than Mr. Peter Barr, whose name in connection with the flower is a household word. Many years have now elapsed since he turned his attention in the direction of the Daffodil, and by dint of the perseverance characteristic of a Scotsman he is in possession of a collection, the magnitude and variety of which are unsurpassed. Aided by sons imbued with a kindred spirit the gigantic work is still going on, and year by year fresh novelties are put in the market, which trace their origin to the famous nurseries at Ditton. To say there are acres of these charming flowers is no exaggeration, and at the present time they form a picture worth going a long way to see. Here is a large area of *Narcissus Barri* conspicuous, the king of the Barri section. Thousands of graceful flowers sway hither and thither in the breeze, or make themselves more showy in the sunlight. Near at hand is a similar quarter of *Emperor*. What a contrast is formed by its trumpet form and bold sturdy habit! It seems to be the type of true manliness in a Daffodil, while the former has more of the fragility of the female sex. To fully appreciate a visit to the Ditton Nurseries one ought to be an enthusiast versed in every new departure in the world of Daffodils, otherwise the variety is enough to confuse.

To speak of and describe only a small portion of Messrs. Barr's Daffodils would be a task too great in limited space, but one thing that strikes the visitor is the method and orderliness that prevail. Every variety has its own bed, either small or large, as the case may be, and one looks in vain for a flower of one sort in the portion allotted to another. There is no confusion of names, and when one comes to think of the continual lifting, drying, and transplanting that is ever going on, one has some idea of the amount of labour required, and also of the excellence of the system by which it is done. Each season a little more space is taken up, and in addition to the large extent of waving flowers and foliage there are other portions on which the younger bulbs are grown through their various stages till they are ready for sale. Fertilisers are sparingly used, the principal being broken bones, which are excellent for retaining moisture. Messrs. Barr & Sons do nothing by halves, and have made themselves thoroughly acquainted with the habits and requirements of the flower that has made the firm famous.

Turning again to the varieties, there are contrasts enough even in the various sections to suit the tastes of all. In the trumpet family comes the elegant little *Cyclamineus* major, a charming flower, yet so modest that one might be excused for passing it by. It is valuable for pot culture, though its true home seems to be in some shady nook in the

rock garden. How different is *Glory of Leyden*, with its bold yellow trumpet and perianth! Yet of its type how beautiful! Amongst others that one could hardly pass without stopping to take a second look is *N. Johnstoni* Queen of Spain. For pot culture the variety is unsurpassed, and its free-blooming qualities render it invaluable for bedding. Its blooms are of a delicate clear yellow, and of its kind there is perhaps none better in cultivation. One might go on to any length telling of the beauties of *P. R. Barr*, *Sharman Crawford*, *Emperor*, *Monarch*, *J. B. M. Camm*, sometimes called the Queen of the trumpets, and many another. *Weardale Perfection* is truly a glorious flower with its spotless perianth and bold trumpet. *Madame de Graaf* is one of the finest of the white trumpets, and *William Goldring* has all the characteristics of a true Swan's-neck Daffodil.

Beauty occupies a high position in the incomparabilis section, and is a bold handsome flower. *Frank Miles* is an elegant flower with yellow perianth and cup. It is very suitable for planting in grass. So striking are the blooms of *Gloria Mundi*, with its rich yellow perianth and large cup, that one cannot fail to notice it; and *Lulworth* by some is considered equally fine. Though better known and more widely spread *Sir Watkin* holds its own as one of the most beautiful and accommodating of the section. Of the Barri family, *N. Barri* conspicuus truly justifies its name, and as proof of its popularity we learnt that though very largely grown at Ditton the end of each season finds the stock sold out. *Flora Wilson* is a charming flower with white perianth and cup, edged with orange scarlet. *Siddington* is a recent novelty, with yellow petals and a large open cup, besides which it is very floriferous.

The Leeds section, popular for beauty and fragrance, contains numerous gems. There is *Duchess of Westminster*, one of the many recipients of a first-class certificate, very distinct and handsomely striking; *Katherine Spurrell*, broad and substantial, with canary yellow cup; and *Minnie Hume*, with its large white perianth and cup, passing from canary to white. *N. Nelsoni* major is one of the most striking of Nelson's Daffodils, though there is much to admire in *aurantius* and *Mrs. C. J. Backhouse*. In the Burbidgei section one is struck with the elegance of *Ellen Barr*, a most refined flower with snow white perianth. *Falstaff* is also a telling flower; and *Mrs. C. Bowley*, a novelty of last year, has characteristics that render it equally striking. *John Bain* is a useful variety, and admirable for planting in grass, and though these are but a few of the forms of the lovely *Poet's Daffodil*, the remainder of the section is equally charming.

These scanty recollections give but a brief outline of what the firm has done to popularise the flower. The work is going on with increasing vigour. Each season sees the list of varieties longer and the area of Daffodils broader. With the growing popularity of the flower what a future there seems to lie before the Long Ditton Nurseries and the firm that controls them!—MONOCLE.

THE YOUNG GARDENERS' DOMAIN.

RASPBERRY CULTURE.

I WAS recently surprised while looking through some gardens in this district (Manchester) to see so many Raspberries trained in the birch-broom style—that is, bundling them round a pole and tying in that position with a cord. A better plan is the following, as proved by long practice. The rows should be from 4 to 6 feet apart according to the kind grown. Then have ready some stout poles about 7 feet long—young Larches out of a thinned plantation are the best, as they are neat and keep in good condition a long time. Failing these common deal posts 3 inches square will answer the purpose. These are placed firmly about every 7 yards in the rows, stretching two wires from end to end, one 3 and the other 5 feet from the ground. To these wires tie the canes 8 inches apart. Then give a surface mulching of half-decayed manure 18 inches each side of the rows. Fork down the centre lightly, then all will be neat. When the new canes appear remove the weaker, leaving just as many as will cover the wires the following year, and as soon as the fruit is gathered cut out the old canes to make room for the young ones so as to get well ripened. I think if growers generally were to adopt this simple method they would have more and finer fruit.—J. C., Lancashire.

THE GLOXINIA.

THE original species of *Gloxinia* was imported from South America about 1815. It derives its name from P. B. Gloxin, a botanist of Colmar, and the flowers were deflexed or drooping. The erect-flowered section originated in a garden sport, but where and with whom this new departure occurred there are no data to show.

For late plants seeds may still be sown, using a very fine mixture of leaf soil, loam, and sand. Immerse the pot in a tank of tepid water before sowing. Sow thinly. Cover the pot with glass, and keep dark. When the seedlings appear remove the covering, and admit all the light possible, but shade from direct sun.

As soon as the seedlings are large enough to handle place them singly into small 60's, using similar compost as before, but do not press the soil firmly, a gentle rap of the pots on the bench being sufficient. When freely rooted shift the plants into their flowering pots, 5-inch. The compost this time should be leaf soil two parts, loam one part, sand one part, and a slight sprinkling of soot. Never allow the plants to get dry, and keep the syringe playing amongst the pots. If all last season's bulbs are not potted, I advise that all the old soil be not shaken off, for the following reason:—The last *Gloxinias* I had to do with, I found

when turning them out of the old pots had young roots all round the old ball of soil; the corms had made a top growth of half an inch, so I carefully pricked off enough soil to allow of repotting in the same size pots as before. I used similar compost to that given for the final potting of seedlings, and gave the plants the same kind of treatment. The temperature ranged from 60° at night to 75° in the daytime. The plants produced splendid foliage, and twelve to eighteen flowers each. The gentleman and gardener gave me great praise, and said I had hit the right treatment.—YORKSHIREMAN.

FORCING FRENCH BEANS.

FRENCH Beans for forcing may be sown either in pots or in boxes. I think the best plan is to sow seven or eight beans in a 60-pot, as when sown in boxes for transplanting the roots are liable to be injured, and the growth consequently checked. Seeds germinate well when the pots are placed on the pipes at the back of a Cucumber house, and the soil kept moist. In about a week the plants will be ready for potting. The best time for this is when the first two leaves are fully developed.

They should be carefully turned out of the 60's and potted in 16's, using one crock and a handful of horse droppings for drainage. Care must be taken not to break the ball of soil or bruise the roots. Sutton's Forcing Dwarf Bean is very good. They grow well potted in a compost of two parts loam to one each of good horse droppings, and one part leaf soil. They require a temperature from 60° to 70°, placing them as near the glass as possible. Care should be taken not to let them suffer by want of water. A good syringing once or twice a day also greatly helps them, and keeps down red spider. When the plants begin to flower they must be kept rather drier till the pods form, when liberal supplies of water are necessary, and liquid manure two or three times a week is beneficial.—W. W.

THE BANANA.

THE Banana or Musa can be grown in any ordinary stove temperature, provided there is abundance of moisture during the growing period. Select strong suckers, and pot in a compost of three parts loam with one of leaf soil and horse droppings, at the same time making it firm, as the Banana is a very strong growing plant. Having filled these pots with roots, plant out in a bed if convenient; it is far better than growing in pots or tubs. Pay particular attention to the watering, as the plants take a large amount when thoroughly established. If planted, say in September, and kept gradually on the move they will be strong, healthy plants by April, when they will commence to show signs of flowering; then keep the atmosphere of the house drier till this stage is over, together with a free circulation of air, to insure fertilisation. Give liquid manure in a weak state, when required, for a week or two; it may then be increased in strength as occasion demands till the fruit shows signs of colouring, when it must be given very sparingly. A good plan is to cut the fruit with a part of the stem attached and hang it on wires close to the glass to receive all the sun possible.

There are several varieties of Musas, but M. Cavendishi is one of the best, I think; it does not take up so much room as the majority of others. The fruit not only ripens in the way suggested, but gives more time for the growing of a young plant after the old one has been early removed.—C. E. L.

CALANTHES.

CALANTHE VEITCHI and C. vestita are amongst the most beautiful and useful winter decorative Orchids we have, and are easily grown under ordinary conditions. Given plenty of heat and moisture in the growing season, with care in preparing the soil, they may be had in great beauty during two of the dullest months, December and January. As the flower spikes are cut remove the plants into a cool house, keeping them perfectly dry and out of the reach of frost until the beginning of April.

Some growers advocate the pseudo-bulbs being shaken out of the pots and laid in boxes of moss until they start, but owing to the chance of decay it is safer to let them remain in the pots until they begin to show signs of growth; they must then be very carefully shaken out. Discard all the old bulbs, and lay the new in a box or tray, removing part of the old roots. Why I say part is because some growers remove all the old roots, and then have trouble in keeping the bulbs upright when potting, whereas by leaving a couple of inches you have something to help to hold them in position until the new roots form.

Have the pots well cleaned, 32's being a suitable size, and nicely crocked. The soil should be composed of two parts good fibrous loam, with the fine knocked out, one part of cow manure, dry enough to pass through a quarter-inch riddle, one part of broken charcoal and crocks, with a little fertilising moss if available. If good fibrous loam cannot be obtained mix a little peat with the soil. Mix well and warm the compost. Fill the pots nearly to the rim, place from three to five pseudo-bulbs, according to size, in the centre of the pots, and let the growth lean outward as much as possible. Work the compost well around them among the old roots until the bulbs will stand, but do not bury them deeply. Place the pots on a shelf at the back of Cucumber or Melon house. Do not give water unless the weather be very hot, then choose a fine day, and sprinkle them with a fine rose. They will soon produce roots, and after the pots are well filled give liberal supplies of weak cow manure water right up to the time the flowers begin to open.

Calanthes are often spoilt by withholding the water too soon, and then, instead of producing long, well flowered spikes, they are often poor, and die away before half the flowers are open.—J. B., Eastnor Gardens.

CANNAS.

THESE beautiful plants are now starting into a new form of life after about three months' rest. They should be potted for the greenhouse and flower garden. We find the best compost to grow them in is three parts loam, two parts leaf mould, and one part sand. After potting they are placed in gentle heat until growth commences—a Peach house or vinery will be found a very suitable place for them. It will be necessary to fumigate them occasionally, as they are subject to attacks of green fly. During the growing season the plants require copious supplies of moisture, both at the roots and also overhead with the syringe. They may be planted out about the first week in June in a rich compost, attention being given to watering, which will be well repaid with a profusion of flowers. On the advent of frost they must be taken up, potted or boxed to preserve the roots from shrivelling, and kept in a cool dry place for the winter.—C. M.

CHIMONANTHUS FRAGRANS GRANDIFLORUS.

I THINK this fragrant winter-flowering shrub is not so well known as it deserves to be. Flowering as it does from December till late spring it comes in very useful for house and table decoration, sprays, and buttonholes. The flowers are a whitish yellow with dark centre, and are very sweet, especially C. fragrans, but C. f. grandiflorus is the better of the two, the flowers being larger and not so strongly scented.

The best situation for a plant is a south wall where it is fully exposed to the sun. Although quite hardy, whilst flowering a little protection should be given, such as mats suspended from the top of the wall, so that they may be drawn aside or rolled up during mild weather. They can also be used to protect the flowers during hot sun.

After flowering the shoots should be shortened to two or three buds, as the flowers are produced on the preceding season's growth. Overcrowding should be avoided, for unless the wood is well ripened flowers will not follow. The plants require deep rich sandy soil, and are usually propagated by layering in the autumn.—A. C. W., Belcarres.

MIGNONETTE.

MIGNONETTE is particularly welcome in winter and spring both in pots for conservatory and room decoration, and also for cutting. The seeds should be sown during the month of August. As the seedlings will not readily transplant we sow in the pots the plants are to flower in, these are 32's, or 6-inch, eight seeds being sown in each pot, covering lightly, and subsequently thinning the plants to five of the stronger. The compost consists of two parts good loam, one part leaf soil or well decayed manure, and enough sand to keep the whole porous. To every bushel of the mixture we add a shovelful of crushed mortar rubbish and a 48-potful of soot.

When the seed is sown the pots are placed in a frame to be protected from rain. When the plants appear they are afforded abundance of light and air to keep them sturdy, which is very important. Towards the end of September they are placed close to the glass in a pit or house, where a temperature of about 45° can be maintained; and air is admitted on all favourable occasions, for Mignonette must not be coddled. When the flower spikes appear weak liquid manure is given, also a sprinkling of artificial manure. To support the plants three or four light sticks are placed round the edge of the pot, and a piece of raffia twisted round them.—WORPLESDON.

EARLY FLOWERING CHRYSANTHEMUMS.

To obtain first-class blooms for exhibition of Madame C. Desgrange and its sports, G. Wermig and Mrs. Hawkins, healthy cuttings should be inserted during the last week of December singly in well-drained thumb pots, using a compost of equal parts loam, leaf mould, and silver sand. Plunge in cold frames free from frost, and as soon as rooted afford air on all favourable occasions, but avoid cold cutting winds. The plants will be ready for 60's by the middle of February, adding a sprinkling of wood ashes to the above compost. Return to the cold frame, and keep them close for a few days afterwards, admitting air gradually at first, then fully. Watering should be carefully attended to, never allowing the roots to become dry, or the plants will lose their lower leaves. Their next shift will be into 48's, using an extra part of loam. Never allow them to become root-bound, but examine and repot as they may require firmly from first to last to insure short-jointed wood. Still keep them in the cold frames, but draw the lights off during mild weather.

They will be ready for their final pots by the middle of May, 24's being a suitable size to flower the plants in. The compost that suits them well is found in three parts rough turfy loam, one each of leaf mould, sand and wood ashes, with a sprinkling of soot and bone dust. Before potting see that the soil is moist, as the plants ought not to require water for a couple of days, but use the syringe freely amongst them on all favourable occasions, then give a thorough watering to moisten the soil through to the drainage.

Stand the plants in their summer quarters in rows running north and south, and examine them two or three times a day for the purpose of watering. When the pots are filled with roots liquid manure should be afforded. A bag of soot placed in a tub of water with sheep droppings forms a good solution. Some of the plants will make their first break by the middle of June; remove the point with the bud, as that will cause them to grow more before showing the next crown bud; select three shoots, removing all others as fast as they appear; by the middle of July they will show the proper bud to select. From six to seven weeks elapse before the buds "take" and the blooms are fully

developed. A sprinkling of some approved fertiliser may be given as soon as the bud is set. House the plants as soon as they show colour, and slightly shade them.

Earwigs and green caterpillars are the two most troublesome pests, and hand-picking is the safest mode of riddance. If the above details of culture be carried out the plants will require no staking, and blooms that will not disgrace the exhibition table will be the result.—GROWER.

A FEW NOTES ON THE PINE APPLE.

WHEN the suckers are taken off in September they must be potted very firmly, and plunged in a hotbed as close to the glass as possible in a properly heated pit. They should be rooted in about six weeks, and will require little attention during the next two months. Keep them rather dry than wet. A great mistake at all times is the over-watering of Pines. Early in February the plants will be ready for the fruiting pots or planting out, the latter method saving much labour during the fruiting season.

For planting make up a good bed of leaves (as is usual when the plants are grown in pots and plunged), prepare a compost of three parts good turfy loam, one part horse droppings and leaf soil; a sprinkling of bone meal, horn shavings, Thomson's manure, wood ashes, and soot improving the mixture. Make the beds for planting 2 feet wide and 15 inches deep. The back one may be 12 or 15 inches higher than the next, by driving stakes into the bed and putting boards behind them. When planted turves should be laid between the plants, so that each one receives the full allowance of water when required.

The house must be kept at a temperature of 60° to 65° at night, allowing it to rise to 70° or 75° in the daytime for the first few weeks, then another rise of 5° may be given when the season has advanced a little more. Close early, and allow the temperature to rise to 100° with plenty of moisture. Water should be given very sparingly at the roots during the first year. In September the plants will be strong, and the temperature may be gradually lowered before the winter comes on, to 60° at night. They will not require any water from that time till starting again in February.

They should then begin to show signs of throwing up the fruits. A thorough watering ought then to be given, using it (and on all occasions) at a temperature of 85°. Raise the temperature to 70° at night, with a bottom heat of not less than 75°. Syringe on bright days, closing early with as much sun heat as possible. When flowering commences syringing must be done very lightly, not allowing any water to reach the flowers, or some of the pips will come deformed through defective fertilisation.

After the flowering afford the plants abundance of heat and moisture, but do not syringe them at this stage, or the water will lodge in the axils of the leaves of the crowns and make them grow out of proportion to the fruit. Keep liquid manure in the evaporating troughs. The fruits after a time will require staking, and great care must be taken to keep them straight, as they look very much better so both for table and exhibition than when the reverse. Watering must be attended to as required, giving the plants some stimulant, but when the fruit shows signs of colouring moisture must be withheld, or there will be a tendency to blackness of the pips, which should be bright and clear.

Though Pines are not generally grown, I hope these notes, the result of experience, may be useful to some readers of the "Domain."—C. E. L.

["J. L. G." sends a very creditable article as a "first try" on "Early Fruit Houses," but has prohibited its publication by omitting his name and address and writing on both sides of the paper. All young gardeners who desire to write acceptably for the press should read and preserve the *Journal of Horticulture* for December 31st, 1896, and those who do not possess it will find 3½d. sent in stamps to the publisher, with a request for a copy, a profitable investment. If "J. L. G." send his name and address his M.S. shall be returned to him for rectification.]



HARDY FRUIT GARDEN.

Planting Outdoor Figs.—Figs do not succeed in soil of a deep, strong texture, because they are likely in such to root deeply and grow too strongly, the wood resulting being sappy in character. They delight in a chalk subsoil, inasmuch as the soil overlying such must be naturally well drained, and is usually a fertile loam of calcareous nature. It should be made firm previous to planting, consolidating it only, however, when moderately dry. It is essential that a warm position be selected for the trees; one having a south or south-west aspect is the best. Position aids materially in modifying growth, assisting it to be short-jointed and ultimately fruitful. Unsuitable soils may be improved by artificial draining and adding lime rubbish or chalk to the staple material for planting in. Under these conditions the aspect is even of greater importance, for without abundance of sun the ripening of the shoots cannot

be fully effected. In no case add manure when preparing ground for Figs. Success will probably be better insured in soil below the average in fertility than in one possessing an excess of organic matter. The best time to plant is during the present month, choosing maiden trees.

Pruning Young Trees.—Young maiden trees being only furnished with one stem require cutting well back after planting, usually to a length of 15 inches. Two breaks equal in strength may be taken one from each side, which will form the first foundation. From these other shoots may be allowed to grow at regular distances in suitable positions for extension, leaving ample space between them for laying in fruiting shoots.

Pruning Old Trees.—The principal pruning necessary consists in thinning out and pruning back to a few buds a certain proportion of shoots. Shoots capable of bearing a crop must be retained at full length. Allow such as these ample space by clearing out crowded growths surrounding them. Shoots with wood buds only should be selected for close shortening in, thus affording an opportunity of furnishing the lower parts of branches with wood. The adoption of these principles of pruning annually insures the trees being kept in a vigorous and fruitful condition, as well as securing a well balanced growth over the entire space available.

Top-dressing Fruit Trees.—Newly formed plantations of fruit will be benefited considerably throughout the season by lightly mulching over the roots before the surface dries too much with manure in a half decayed lumpy state, this serving to preserve moisture in the soil, while admitting air and warmth. These conditions are essential to free growth, hence rich dressings of manure would not be so serviceable. Should the summer prove very dry the mulching may be renewed when necessary.

Mulching Old Trees.—Trees in bearing and having roots near the surface may have richer applications to the roots. A dressing of some approved artificial manure may be given to those trees where a good crop is anticipated or more growth is desirable. The most stimulating and easily dissolved fertilisers ought not to be wholly used at this period without admixture. Nitrate of soda is very quick in action. Sulphate of ammonia is also soluble, but not so rapid as the former. Soil retains ammonia some time while it remains as such, but under certain conditions it is quickly changed to nitrate, and if the roots do not then make use of it, it is washed through the soil. A good mixture of chemical manures consists of mineral superphosphate two parts, nitrate of soda one part, muriate of potash two parts, and dissolved bone one part. The whole should be well mixed, crushing as fine as possible. Apply 4 ozs. to the square yard, preferably mixing with soil or decayed manure for trees or bushes having abundance of roots near the surface, so that the fibres may not be injured. With deep-rooted trees the manure may be applied direct on the surface. Further dressings can be given when fruit is set, and again when swelling freely. Half the quantity applied at the first dressing is sufficient for successional applications.

Hoeing Fruit Borders.—Vacant soil between either young or old trees should be loosened with the hoe. This will act effectively in destroying germinating seedling weeds and improve the appearance of the quarters. In the case of young plantations a loose surface between the trees promotes the active growth desirable, inasmuch as air and warmth are admitted, moisture being conserved.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest House.*—The very early varieties Alexander and Waterloo Peaches, with Cardinal Nectarine, have completed the stoning process, and are closely followed in this respect by Early Louise Peaches and Early Rivers Nectarine. These very early varieties should be grown in a house by themselves, so that when the stoning is completed the fruit may be accelerated in ripening by an increased temperature, but it is not advisable to exceed 65° at night, or 70° to 75° by day from fire heat, because the growths are liable to become attenuated when the atmosphere is warm, close, and moist. It is different under sun heat, as evaporation is going on, and assimilation taking place to a much larger extent; therefore the temperature may be kept through the day at 75° to 85° from sun heat, ventilating at the top of the house at 75°, and opening the front at 80°, so as to secure a circulation. To prevent moisture being deposited on the fruit and "spot" induced, it is advisable to leave a chink of air at the top of the house constantly. Close the house at 80°, and sufficiently early to allow of a rise to 85° or 90°, the trees being syringed, and surfaces well damped so as to secure atmospheric moisture, which will cause the fruit to swell to a great size, Alexander and Waterloo reaching 10 inches in circumference. Employ clear rain water, and have the fruit dry before nightfall. Syringing the trees must cease directly the fruits commence ripening, otherwise their skins may become rough or cracked, and then they are spoiled in appearance and have a musty flavour when ripe. A genial condition of the atmosphere should be maintained for the benefit of the foliage by damping available surfaces twice a day, and keeping the mulching on the borders moistened as it becomes dry.

The second early varieties, Hale's Early, A Bec, Early Alfred, Dr. Hogg, and Rivers' Early York Peaches, Rivers' Early, Lord Napier, and Goldoni or Darwin Nectarines, started in December, have scarcely finished stoning, and they must not have a temperature exceeding 60° to 65° at night and 70° to 75° by day with gleams of sun. Allow 5° to 10° more from sun heat with a free circulation of air. Stirling Castle, Royal George, Dymond, and Crimson Galande, all Peaches carrying a

high colour combined with first-class quality, and unrivalled for forcing, all points considered, are still later in stoning, as also are Stanwick Elruge, Dryden, and Humboldt Nectarines; therefore when a number of varieties are grown in the same house the temperature must be regulated so as to suit the later varieties. Pay particular attention to the watering; keep the border mulched with sweet, rather lumpy manure about an inch thick, and afford liquid manure when necessary, or top-dressings of fertilisers washed in, but avoid encouraging sappy growths by excessive and needless supplies. Stop or remove all gross growths, they have time to draw the supplies of sap from the weaker parts of the trees, but allow leading shoots, particularly of young trees, to extend over uncovered parts of the trellis, pinching out their points when the fruits begin to take the last swelling, or they may be left their full length when sturdy and short-jointed. Remove the leaves over or in front of the fruit, and turn the latter up to the light by thin laths placed across the trellis with the apex pointing in the direction of the most light, so that the colour may be there most pronounced and the fruit highly flavoured.

Disbudding and the shoots that are to succeed those now fruiting having been properly attended to, there will not be any more growths than are necessary for next year's bearing, the extension of the tree, or for attracting the sap to the fruit. Gross shoots are best removed, as they appropriate an undue amount of sap, often fall a prey to gumming, and cause unequal vigour in the branches of the tree. Pinch laterals at the first leaf. Shoots retained to attract the sap to the fruit ought to be stopped in the first instance at three or four joints of growth. Endeavour to provide an equal distribution of foliage that will shade and protect the strong wood from the direct rays of the sun as the season advances, as they are liable to become sunburnt or dried, and the channels that convey the sap are thus contracted. Besides, such condition invites attacks of the Peach-boring Woebertian moth caterpillar. Avoid overcrowding the foliage, not permitting more shoots than can have full exposure to light and air.

Ventilate early but carefully, avoiding depressions of temperature and cold currents. Thin the fruits where too thickly placed, not overdoing it. With the trees in good health and not too luxuriant the prospect of stoning a full crop of fruit is more likely than when the trees are overburdened, whilst deferring thinning only takes so much size from those fruits that are ultimately allowed to remain for the crop. Inside borders must be duly watered, and may be mulched with short sweet stable manure, but not too fresh or too thick.

Trees Started in February.—In disbudding the strongest parts of the tree would be commenced with, and a shoot reserved at the base of the current year's bearing shoots. A growth on a level with or above the fruit must also be retained on each bearing shoot, and be pinched at three or four joints, leaving no more extensions than are necessary for furnishing the trees with branches, which should be 12 to 15 inches apart. On last year's extensions the growths for next year's bearing should be left 12 to 15 inches distance apart. Attend to thinning the fruit, removing the worst placed, reserving a few more only than will be required for the crop. One fruit to every square foot of trellis covered by the tree is ample, but vigorous trees may have the fruit left a little closer, and weakly trees be correspondingly thinned. Syringe early on fine mornings, admit a little air shortly afterwards, gradually increasing the ventilation with the sun's heat, and syringe the trees again about 3 P.M., closing the house so as to insure a slight rise from sun heat.

Trees Started Early in March.—As the blossoming is over recourse may be had to measures for the destruction of insects. Fumigation must be carefully practised, as the tender foliage and young fruits are highly susceptible to injury, an overdose skeletonising the leaves and causing the fruits to fall. Similar remarks apply to insecticides, which, if used too strong, may prove as injurious to the leaves and crop as to the insects. Syringe the trees in the morning and early afternoon on fine days, whilst in dull weather an occasional syringing with damping of the paths and borders will suffice. Water inside borders as required, always affording enough when any is needed to thoroughly moisten the mass of soil through to the drainage. Proceed with disbudding gradually, a little each day, and observe the same rule in thinning the fruit, rubbing off the smallest and badly placed as soon as the most prominent show signs of taking the lead. Ventilate freely on all favourable occasions, closing early with a view to utilising the sun's heat.

Latest Houses.—The trees in most cases are in blossom, and this profits by free ventilation, insures sturdiness and high concentration on the parts developing. Merely use fire heat to exclude frost, and to allow ventilation during the day. When the anthers show turn on the heat in the morning so as to raise the temperature to 50° by 8 A.M., and keep at that through the day with a gentle circulation of air, turning off the heat early in the afternoon, so as to allow the pipes to cool before night, and the temperature falling to its night minimum of 40° to 45°. This is quite safe, and ought to be secured after the blossoms expand with a little air to prevent the deposition of moisture through the night on the flowers. Impregnation may be effected by shaking the trees, dusting the flowers with a rabbit's tail mounted on a small stick, a camel's-hair brush, or a plume of Pampas Grass, but the best aids to a good set are free ventilation and a genial atmosphere.

Unheated houses or wall cases should be very freely ventilated in bright weather, but when the petals unfold it is necessary to secure a genial temperature by day, ventilating at and regulating it so as to secure a heat of 50°. As a safeguard against frost the house may be closed rather early enclosing sun heat up to 65°. Do not use water for

damping down after noon, and this will prevent moisture condensing on the flowers through the night, or a little air will allow it to escape. Scrim canvas or other material over the roof is useful on frosty nights.

THE FLOWER GARDEN.

Gladioli.—If the corms are kept out of the ground much longer the probability is they will either fail to start strongly or the plants be too late to flower properly. Corms may be planted in the open ground now, and others for succession not later than the end of April. They pay well for liberal culture, and seeing how cheaply handsome varieties can be bought, there is little excuse for their not being grown in every flower garden. If wanted particularly good, they ought to be grown by themselves on well-manured, deeply dug ground, each corm surrounded with silver sand and a little fresh loam. They ought to be buried 4 inches below the surface, and may be arranged 9 inches apart in rows 1 foot asunder. In mixed borders plant either in groups of three or singly. Gladioli are very effective in beds dotted among Mignonette, Heliotrope, and other low growing flowers.

Herbaceous Lobelia.—These tall-growing species, of which Queen Victoria and cardinalis fulgens are two of the best, make the finest display if the seed is sown in June and strong plants prepared and wintered in frames for turning out early in May, but much may also be done by dividing old stools now. If these have been kept in a cold frame, they may now be split up freely, every young shoot being furnished with roots at the base. Either temporarily bed them out in frames or pot them singly, and strong, well-established plants may be had by bedding out time. The crimson stalks and foliage are effective, and late in the summer the spikes of scarlet flowers highly attractive. The plants cannot well be too liberally treated at the roots.

Hollyhocks.—Old stools wintered under glass should now be sufficiently advanced for dividing, every young growth furnished with roots being potted singly and kept in gentle heat till well established. Cuttings taken off with a heel, placed separately in 2½-inch pots, and set on a warm flue or the staging very close to hot-water pipes, will root in the course of three or four weeks, but will damp off if kept too close and moist. Any that have been already rooted should, before they are root-bound, be given a shift into 5-inch pots and kept in gentle heat for a time. Seedlings raised early may be grown sufficiently strong to flower late in summer, but they must be kept steadily growing till they are planted out in well-prepared borders.

Sweet Peas.—These are highly valued, and more than ordinary pains have to be taken in raising a supply of plants. This season the seed is of an inferior character, that of choice varieties germinating badly, even in heat, and it is so expensive that it is unwise to risk sowing it in the open, unless the soil is of a warm light character. Plants raised early should be hardened, and more seed sown in 3-inch pots. A group of from five to eight plants well isolated and duly supported will thrive and flower far better than when crowded into rows. Make a successional sowing of common varieties where they are to flower. Give them plenty of manure at the roots, water freely in dry weather, and they will continue to flower abundantly till frosts intervene.

Sunflowers.—There are now quite a large number of annual Sunflowers, including both single and double flowering, tall and dwarf varieties. The more robust of them may be sown where the plants are to flower, this being done late in April; but as they transplant readily, raising under glass is the plan generally adopted, and is really the best for the more delicate varieties, including the charming New Miniature. Sow the seed thinly now or before the end of April in pans or boxes, placing these in gentle heat. Raised thinly and not unduly forced the plants will be sturdy, and there will be no necessity to pot them off.

Balsams, Ricinuses, Grasses.—The first named can be raised in the open, the seed being sown thinly in patches where the plants are to flower not later than the first week in May. A stock will, however, be obtained with greater certainty by sowing the seed in pans and placing these on a warm greenhouse shelf. If the soil is shaded and uniformly moist the plants will soon appear in a sturdy form for potting singly. Ricinuses are also easily raised, and a few of these noble plants are very effective in the pleasure grounds. From the middle to the end of April is soon enough to sow the seed, as it germinates in a few days, strong plants being easily prepared for the open in a month. Sow singly in 3-inch pots, place in heat, and keep the plants near the glass. Give a shift before they become root-bound. Ornamental Grasses may be sown now thinly in patches where they are to grow, and according to their respective heights, or they may be raised in boxes in gentle heat, and duly moved out in patches. Their requirements are of the simplest description, crowding the plants being the mistake most often made. Now is a good time to sow Zinnias under glass.

Sowing Hardy Annuals.—If the borders were duly manured and in good condition there should be no further delay in sowing hardy annuals, including Alyssum, Candytuft, Collinsia, Chrysanthemums, Convolvulus, Calliopsis, Godetias, Helichrysums, Larkspurs, Linums, Malopes, Mignonette, Nasturtiums, Nemophilas, Poppies, Sweet Sultans, Tropæolums, Venus' Looking Glass, Virginian Stock, Hibiscus, and such like. Fine down the soil, moisten it if at all dry, form circular patches, and sow the seed thinly, according to the catalogue heights of the varieties. Place a peg or label to each, and cover with fine sifted soil. Keep a good look out for slugs, trapping or otherwise destroying these before they play havoc with the seedlings.

THE BEE-KEEPER.

SEASONABLE NOTES.

THE influence of wet weather, when accompanied with a low temperature, is most detrimental to bees at this season, and the past month has been unsatisfactory from a bee-keeper's point of view. High winds and cold showers of snow, hail, and rain have prevailed throughout the month. The total rainfall was 2.53 inches, which fell on twenty days. Only on a few occasions, during short spells of sunshine, have the bees been able to venture far from their hives, thus showing the great advantage derived from having early producing pollen-bearing plants within a short distance of the apiary. The bees are then able to obtain all that is necessary from a natural source. This is a much better plan than supplying them with artificial pollen, but there are many bee-keepers who are not able to utilise the most useful plants and trees for the future requirements of their bees. It is then an absolute necessity to supply artificially, as stocks will make little headway unless pollen is coming in freely.

Pea meal or ordinary Wheat flour makes a capital substitute. The best plan is to place it in the open air daily when the bees are on the wing. If placed in a vessel containing a few shavings, to which the bees may be enticed with a little liquid honey or thin syrup, they will take it readily; or if a small quantity is dropped into some fully expanded flowers which bees frequent, it is surprising how rapidly they will clear it out and carry it to their hives.

Bees on the whole are very backward, and unless a change soon set in they will not be in a good condition for the fruit blossoms. This is not to be wondered at when one takes into consideration the wet weather experienced throughout the country during the past six months. The first three months of last year was in marked contrast to the present season. The rainfall being light, fine weather prevailed, bees were daily on the wing, and stocks increased rapidly; but owing to a cold spring and a dry summer it was not a good honey year (except in a few favoured localities), showing that however good the early months of the year may be, all will depend on the weather and the condition of the bees when the honey flow comes.

An early harvest cannot be expected this year, as many of the stocks have less bees now than they had a month ago. Should a favourable change in the weather set in colonies headed by young fertile queens will increase at a rapid rate, and will doubtless soon make up for lost time.

SPRING DWINDLING.

To guard against this it is advisable to know the condition of each individual stock. If each hive is numbered, as has been often advised in these pages, it is a simple matter to make a note as to their requirements, and due attention given to them, as spring dwindling is frequently caused through shortness of stores; and with the advent of April it is quite safe to feed with thin syrup in preference to candy, as however carefully the latter may be made there is always a certain amount of waste in connection with its use. The bees will abstract the moisture from a portion of it and carry the dry pieces of sugar that remain out of the hive. But with syrup there is no waste, though it is not advisable to use it at midwinter.

Thin syrup, for spring feeding, may be made in the proportion of 1 lb. of sugar to a pint of water, boil until the sugar is dissolved, and it will be ready for use; a pinch of salt and a spoonful of vinegar stirred into it will be an advantage. The bee-keeper's aim should be to keep the bees as warm as is possible. By using a float-feeder on the top of the hive it is almost impossible to prevent an escape of heat from the brood nest, and for this reason it is advisable to use a bottle-feeder for some time to come; the temperature of the hive will then not be interfered with. Have an ordinary honey jar, and partly fill it with warm syrup, and tie a piece of muslin tightly over the mouth; cut a hole the same size through the quilt, and insert a piece of perforated zinc to prevent the bees escaping whilst the bottle is being refilled; invert it over the aperture, and cover with several thicknesses of old carpet or similar material, and the bees will take it readily, and if continued until the natural supplies are coming in freely little spring dwindling will take place, although it is very prevalent where careful attention is not given to the bees.

OPEN AIR FEEDING.

This is an easy way of keeping the bees supplied with stores during favourable weather at this season, but it is only recommended when there are no other bees in the district, or when the

bee-keeper does not mind his neighbour's bees having a share with his own. I often practise it, and the bees will take it freely if placed near their hives. It has the advantage, too, of being little trouble. A few shallow saucers are required into which are placed a few shavings or thin strips of wood to prevent the bees being drowned. These are put within a few yards of the hives, and filled with thin syrup as often as required. It is not advisable to do this too early in the season, or it will encourage robbing, but after this date I have not been troubled in that respect.

In large apiaries, which are isolated in the country from other bees, or in solitary hives in country gardens, I can strongly recommend this plan where bees are at all short of stores. However carefully stocks of bees may be fed in the autumn there will be some that require feeding at this season.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

G. Bunyard & Co., Maidstone.—*Herbaceous Plants*.
W. Clibran & Sons, Altrincham.—*General Catalogue*.
F. R. Pierson & Co., Tarrytown-on-Hudson, New York.—*Seeds and Plants*.
F. E. Young, Rochester, New York, U.S.A.—*General Tree List*.



* All correspondence relating to editorial matters should be directed to "THE EDITOR." Letters addressed to members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return rejected communications.

Rose Cups and Tubes (A. M. M.).—The cups and tubes used by the members of the National Rose Society is Foster's, which may be procured from any horticultural dealers. The patentee is Mr. Foster, Ashford, Kent.

Dimensions of a Tennis Court (E. R.).—The following are the measurements:—Extreme length, 78 feet; width, 36 feet; inner court, 42 feet long, 27 feet wide, divided lengthways by a white line and crossways by a net. Your rough sketch is correct.

Chrysanthemums from Suckers (T. H. B.).—The healthy suckers with roots attached, if potted, placed in a frame, judiciously watered and shaded for a time to prevent the leaves flagging, will, under good management, make useful decorative plants in the autumn. If you have in view exhibition blooms, such plants cannot be expected to produce them "as well as if cuttings were taken at the proper time."

The New Vegetable "Chayote" (Mrs. M., Wimbledon).—We have been successful in discovering the botanical name of this perhaps over-extolled vegetable through the great seed firm of Messrs. Vilmorin and Co., Paris, and as we have seen the vegetable grown in England and tasted its "fruit," as that is the part eaten, we hope to reproduce an illustration of it in an early issue. It has another fanciful name in England.

Orchid Book—Microscope (N.).—"Orchids: their Culture and Management," by Mr. W. Watson of Kew, is an excellent work. The publisher is L. Upcott Gill, Strand, London. "Barberry's Orchid Book," published by Blake & Mackenzie, Water Lane, Liverpool, is lower in price and thoroughly reliable. Write to Messrs. Negretti & Zambra, Holborn Circus, London; or Messrs. Newton & Co., Strand, London, respecting microscopes.

Saddle Boiler for Heating Hot-water Pipes (Constant Reader).—We suppose you propose having a plain saddle boiler. To heat 700 feet of 4-inch piping satisfactorily the boiler should be 42 inches long, 18 inches wide and deep inside arch, or 48 inches long, 16 inches wide and deep inside arch, as you may have setting room for a short or long boiler; waterway 2 inches. If a terminal end saddle boiler, which is best for piping over 300 feet, 36 inches long, width (inside arch) and depth 16 inches, waterway usually 2 inches, but that is not material, and is best left to the makers. The heating power is 750 feet of 4-inch piping, better too much than too little.

Caterpillar on Flower-bed Plants (Caterpillar).—It is extremely difficult to advise anything for the purpose, as most substances leave a deposit on the foliage, which is very objectionable in the case of plants in flower beds on the score of appearance, and some are of a poisonous nature, such as Paris green and white hellebore powder, therefore scarcely advisable for use among flowers. If you syringe the plants, or sprinkle them occasionally by means of a watering can with a fine rose in the evening, with an extract of quassia chips, 2 ozs. to a gallon of water, the leafage would be made so bitter as to be unpalatable to the caterpillars. The quassia chips should be steeped overnight in cold water and then boiled for a quarter of an hour, allowing to cool, then straining. Of course, the chips may be placed in a much smaller quantity of water for steeping and boiling; suffice if they are well covered to allow of a good extract, adding the required amount of water. If you add softsoap at the rate of 1 oz. per gallon of water, dissolving in the hot extract as it cools, it will adhere better to the foliage, and be even more objectionable to the caterpillar, as also to the eye, for it leaves some deposit on the leaves. If you do not mind that add 1 oz. of freshly ground white hellebore powder to each gallon, mixing well. This is a poison, but it soon loses that property, and is not dangerous.

Plum Growths and Blossom Blighted (F. W.).—The young leaves and the blossoms are badly "blighted," as you say, but not by either insects or fungi, for the flowers are perfect in ovary and stigma, also stamens and anthers, where the petals are more or less damaged. True, in some cases, the whole flower is killed, and the agent has been frost. This has been the cause of the mischief so far as the browning is concerned, but the blossom altogether is very puny, and may be a consequence of very heavy cropping in previous years. We examined the growths and flowers very carefully for insects and fungi, and only found two scale insects and one thrips, the latter a black one (*Thrips minutissima*) which certainly could do little harm, there not being any trace of injury from that source on either the growths or flowers. Of cryptogamous plants there was only a little moss, and that of no material consequence. We see little to call for remedial measures, but you may spray or syringe the trees with a solution of soluble petroleum, which can be readily made by dissolving 1½ lb. softsoap in a gallon of water by boiling, and when dissolved and boiling remove from the fire and add 1 pint of petroleum, stirring briskly with a switch made of an old birch broom until thoroughly amalgamated, and then add hot water to make 10 gallons, mixing well, and when cooled to 90° to 100° apply either with a spraying apparatus or syringe. This may be done as soon as the trees go out of blossom, and it will make end of the scale and thrips, or, if any, aphides and red spider, also the moss.

Tomato Leaves Mottled (W. L. H.).—We subjected the specimen to a careful examination, and found nothing but a few outgrowths here and there of the conidial condition (*Botrytis cinerea* var. *sclerotiphila*, Mass.) of the smother Potato fungus (*Sclerotinia sclerotiorum*), of which you need not feel alarmed, as you have used fostite and sulphured the hot-water pipes, both excellent methods, only do not employ so much fostite as to needlessly coat the fruit, the lightest possible dusting sufficing. We would, however, urge early ventilation, some always, so as to prevent moisture settling on the foliage and fruit. With this and the steps taken you may defy the parasite, which certainly cannot live in a comparatively dry atmosphere. 2. To prevent any injury at the roots, and fortify the plant inside, you may use Little's soluble phenyle, which may be had by order through any chemist throughout the world, or direct from Messrs. Morris, Little and Son, Ltd., Doncaster. The proper strength to apply to the roots is 1 part in 96 parts water = 1 gill (¼ pint) soluble phenyle to 3 gallons of soft water. It is a fertiliser as well as a germicide and eelwormic de, also miticide. It is not advised for the tops. 3. Superphosphate of lime should be sprinkled on the surface of the soil and scratched in, or, if that is not possible on account of the roots, cover with a little soil, only a very small amount, or it may be washed in. If used as a liquid do not use more than 1 oz. per gallon of water, better too weak than too strong.

Variegated Patches on Tomato Leaves (Festina Lente).—We have microscopically examined the leaves and discovered no disease in the yellowish patches, which appear defective only in respect of chlorophyll, and that simply localised to a small portion of the leaflet surfaces. This occurs on a great variety of cultivated plants, especially Potatoes and Tomatoes, but from what causes it arises has not been satisfactorily explained. It is certain, however, that disease often begins at such places, hence may be regarded as relative weakness as compared with the other parts of the leaves. Indeed the spots often spread and cause the whole leaf to become similarly affected, and that without trace of any micro-organic or visible agent; otherwise the leaves are very healthy, but rather deficient in substance, and certainly would be benefited by more air, not so much to check growth as to secure stouter texture and a more floriferous habit, which is also most disease-resisting. We would also advise the use of fertilisers of a moderate ammoniacal or nitrogenic nature until the fruit is set and swelling, such as dissolved bones 3 parts or lbs., double sulphate of potash and magnesia 2 parts or lbs., nitrate of soda 1 part or lb., and sulphate of iron ¼ part or lb., mixed, using about 4 ozs. of the mixture per square yard, omitting the nitrate of soda until the fruit sets; then it can be supplied very advantageously, as with the plant stored with phosphoric acid and potash the nitrogen will be much better utilised. Of course the nitrate of soda can be employed when growth is wanted, but it rather hinders than favours fruitfulness. The flagged leaves recovered, except at the tips of the leaflets, and in the tissues of these we failed to discover any fungal hyphæ, so that the plants if affected at all by drooping disease

fungus, sometimes *Fusarium solani* var. *lycopersici*, at others by *Sclerotinia sclerotiorum*, are so at the roots; even Potato fungus, *Phytophthora infestans*, may be carried over in the seed. This shows why some plants collapse under conditions that appear to favour others, the sole difference being that some are infested and the others quite clean. The only safeguard against this is very careful selection of seed from perfectly healthy plants.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, at being often difficult to separate them when the paper is damp. (*Telmah*).—To name plants from such scraps as you have sent is an impossibility. Send fresh ones packed properly, and we will gladly assist you. (*Salix*).—1, *Salix alba*; 2, *S. fragilis*; 3, *S. viminalis*; 4, *S. Caprea*; 5, *S. purpurea*. (*W. M. G.*).—*Sparaxis tricolor*.

COVENT GARDEN MARKET.—APRIL 7TH.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	1	3 to 2	6	Lemons, case	11 0 to 14 0
Filberts and Cobs, per 100 lb.	0	0	0	Plums, ½ sieve	0 0 0 0
Grapes, per lb.	3	0	3 6	St. Michael Pines, each ..	3 0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100	0	0 to 0	0	Mustard and Oress, punnet	0 2 to 0 4
Beans, ½ sieve	0	0	0 0	Onions, bushel	3 6 4 0
Beet, Red, dozen	1	0	0 0	Parsley, dozen bunches ..	2 0 3 0
Carrots, bunch	0	3	0 4	Parsnips, dozen	1 0 0 0
Cauliflowers, dozen	2	0	3 0	Potatoes, per cwt.	2 0 4 9
Celery, bundle	1	0	0 0	Salsafy, bundle	1 0 1 0
Coleworts, dozen bunches	2	0	4 0	Seakale, per basket	1 6 1 0
Cucumbers	0	4	0 8	Scorzonera, bundle	1 6 0 0
Endive, dozen	1	3	1 6	Shallots, per lb.	0 3 0 0
Herbs, bunch	0	3	0 0	Spinach, pad	0 0 4 0
Leeks, bunch	0	2	0 0	Sprouts, half sieve	1 6 1 0
Lettuce, dozen	1	3	0 0	Tomatoes, per lb.	0 4 0 9
Mushrooms, per lb.	0	6	0 8	Turnips, bunch	0 3 10 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (various) doz.	6	0 to 36	0	Ferns (small) per hundred	5 0 to 8 0
Aspidistra, dozen	18	0	36 0	Ficus elastica, each	1 0 7 0
Aspidistra, specimen plant	5	0	10 8	Foliage plants, var. each	1 0 5 0
Azalea, per dozen	18	0	36 0	Genista, per dozen	6 0 10 0
Cinerarias, per dozen ..	6	0	9 0	Hyacinths large, per dozen	6 0 12 0
Ocyclamen, per dozen ..	8	0	12 0	Lily of the Valley, 12 pots	9 0 12 0
Daffodils, per dozen ..	6	0	8 0	Lycopodium, dozen	3 0 6 0
Dracæna, various, dozen ..	12	0	30 0	Marguerite Daisy, dozen ..	9 0 12 0
Dracæna viridis, dozen ..	9	0	18 0	Mignonette, per dozen ..	6 0 8 0
Erica, per dozen	9	0	18 0	Myrtles, dozen	6 0 9 0
" hyemalis, per dozen	10	0	12 0	Palms, in var., each	1 0 15 0
Eunonymus, var., dozen ..	6	0	18 0	" (specimens)	21 0 63 0
Evergreens, in variety, doz.	4	0	18 0	Spiræa, per dozen	6 0 9 0
Ferns in variety, dozen ..	4	0	18 0	Tulips, dozen pots	6 0 9 0

Roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety

	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches ..	1	6 to 3	0	Mignonette, dozen bunches	3 0 to 6 0
Arum Lilies, 12 blooms ..	2	0	4 0	Narciss, White, dozen	
Asparagus Fern, per bunch	2	0	3 6	bunches	1 3 2 0
Azalea, per dozen sprays ..	0	6	0 9	Narciss, Yellow, dozen	
Bouvardias, bunch	0	6	0 9	bunches	1 0 2 0
Carnations, 12 blooms ..	1	6	3 0	Orchids, var. doz. blooms	1 6 12 0
Daffodils, double, dozen bunches	1	6	3 0	Pelargoniums, 12 bunches	6 0 9 0
Daffodils, single, dozen bunches	2	0	4 0	Polyanthus, dozen bunches	1 0 3 0
Eucharis, dozen	3	6	4 0	Pyrethrum, dozen bunches	1 6 3 0
Gardenias, dozen	3	0	6 0	Roses (indoor), dozen ..	1 0 1 6
Geranium, scarlet, doz. bunches	4	0	6 0	" Tea, white, dozen ..	1 0 2 6
Lilac, White (French), per bunch	8	0	4 0	" Yellow, dozen (Niels)	3 0 4 0
Lilium longiflorum, 12 blooms	2	0	4 0	" Red, dozen blooms ..	1 6 4 0
Lily of the Valley, 12 sprays, per bunch	0	6	1 0	" Safrano (English), dozen	1 0 2 0
Maidenhair Fern, per dozen bunches	6	0	8 0	" Pink, per dozen	4 0 8 0
Marguerites, 12 bunches ..	2	0	3 0	Smilax, per bunch	4 0 6 0
				Tuberose, 12 blooms ..	1 0 1 6
				Tulips, dozen blooms ..	0 6 1 0
				Violet Parme, per bunch ..	2 0 2 6
				" per doz. bunches ..	1 0 1 6
				" (French), per dozen bunches	0 6 1 0
				Wallflowers, dozen bunches	1 6 4 0



WHO GETS IT?

NOT the lawful owners, of that we have been quite sure for a long time, but it is the way of the world; the weakest always go to the wall. The work of individuals is swamped by the work of

the mass, and it is only by combination, and presenting a face set like a flint, that the rightful owners get their due. Farmers are robbed on all sides; they have long odds to contend with—bad seasons, bad prices, and over-production, but the greatest obstacle to their own advancement is to be found in themselves. When a man's foes are those of his own household, the situation is at its worst. There appears to be no known method or scheme that will bring about among farmers a spirit of co-operation. Like the revolutionaries in Ireland, there is always a traitor to be found in the camp, and the scheme is strangled in its very birth.

Who gets the profit accruing from the milk trade? In towns and thinly populated districts the milk trade is brisk, and the demand for the really good article great. But why is it that the B.D.F. is brought almost to the verge of ruin? What are the causes, and what, if any, are the remedies suggested? "Sweet are the uses of adversity," and if adversity will open the eyes and enlarge the mind it has fulfilled its mission well. Mr. Sheldon says, "The milk trade is under no management whatever; on the producer's side that involves the employment of a comprehensive system of co-operation. This is the universal weak spot of the milk trade—the want of regulation. The trade is like the rabble of an army, entirely destitute of battalions and regiments. . . . The whole thing is without cohesion, regulation, organisation, or system; it is, in fact, limp, loose, and invertebrate to a degree—a degree, however, that makes its weakness a certainty, and, at the same time, a constant source of loss." It is always hopeless to expect the milk trade to become organised so long as farmers had no obvious leaning to co-operation.

It is a curious thing, but while a man will freely tell his rent, the amount of his wife's fortune, the price received for most of his farm produce, he keeps a still tongue in his head when the question of milk contract comes uppermost; it is a secret known only to himself and the dealer. There must be something wrong when a farmer only receives 2d. per quart, for that milk which is afterwards retailed in London at from 3d. to 5d. per quart—the much larger quantity at the greater price. Are we obliged to submit to this? Of course we know that the retail dealer has working expenses and bad debts, but has the farmer never a bad debt? We think we have heard of a good many dealers who have failed to come up to time, and there was no getting back the lost milk.

"Defence, not defiance," is as good a motto for the dairy farmer as for our standing army, and we are glad to see that at least a section of the profession are taking steps to prevent themselves being further mulct of their profits. We allude to the farmers of Staffordshire and Cheshire. Naturally the Cheshire men will look to their cheesemaking to relieve them of surplus milk, or rather to use milk for that purpose when it cannot be sold at a decent profit. Can any other opening be found for that milk which cannot be sold or turned into cheese or butter? We think so. When we speak of cheese, we mean the ordinary hard-keeping cheeses. Now there are several soft cheeses seen only on the tables of the well-to-do which would make a charming addition to the bill of fare of the million. They are not difficult of manufacture; they do not require much plant, and can be sold at a popular price.

Some of these cheeses have been made most successfully at the local technical classes; indeed, we fancy there is hardly now a district in England where the "soft cheese" teacher has not been. Three cheeses here mentioned are made of new milk, and all are ready to use within the week. We refer now to "the Cambridge," "Coulommiers," and Gervais cheeses. Then, again, we have known a good trade done in the old-fashioned cream cheese, an article most easy of manufacture, and which leaves a nice living profit. Let the million have these cheeses set before them, and we guarantee there will be a market for them. How many a tired-out housewife will find in them an excellent substitute for the everlasting pudding. Which is nicer in warm weather, a piece of sweet mild cheese or

some of the "stickjaw" compositions seen on the middle-class table, and dignified by the name of the "sweet course?"

All this time we seem to have lost sight of the real owners of the milk. Well, says one, has not this article been all about the dairy farmer? Soft and fairly, my friends, not so quite. What business have we to take away the birthright of the calf? We do not hold with substitutes for milk—we know by experience that our best stock is that we have reared ourselves on good wholesome milk supplied directly from the mother to her offspring, but here we go one better than Nature. We give our cows two calves to rear—sometimes three. We give the cow the best of all good food, and she repays us in this way, by bringing the calves to first-rate condition and keeping in good condition herself. Breeding stock has paid and will pay in more ways than one.

There is nothing that beats good pure-bred stock, and how can any trust to pick up what he wants in the market? We still find, bad as times are, that our butter meets with a ready sale, and we know our pigs are capital machines for turning the old milk into prime bacon and ham. Good meal, a few "taties," and all the old milk the dairymaid can be induced to spare, will, if put into a growing pig's skin, make a good profit and quick return.

WORK ON THE HOME FARM.

The past week has been a favourable one for farm work. We have had only one wet day, and that has done more good than harm for the sodden ground so suddenly drying was working up rather rough, and the rain has had a good effect on the hardening clods. Sow, drill, or plant have been the order of each and every day, and good progress has been made. We are not sure that the present is not the busiest time of the farm year. The drilling of grain and planting of Potatoes, the sowing of small seeds and preparation of land for Mangold operations, all condensed into four or five weeks, at a time when sheep and cattle are requiring more labour and attention than at any other period of the year, make the seedtime a very anxious one for the tiller of the soil.

Sheep are coming off Turnips, and will have Mangolds on grass until clipped and sold. They will not bear to be too closely penned up when eating Mangold, as they are better for a little exercise, which prevents the excess of sugar in the Mangold from bringing on urinary complaints.

Grass has grown very fast, and pastures are now giving a nice bite. Stockowners did not require much reminding that it was time to turn their cattle out, and many fields are now stocked.

Fallows are turning up very rough, and require the drag harrow and roll very closely after the plough if a fine tilth is to be secured. If the land is clean, we prefer ploughing again after a few days' exposure to the sun and wind. This only applies to the medium and heavy soils; for light ones there is nothing better than a repetition of drag, harrow, and roll until the land is clean or wanted for Turnips.

Mangolds should be drilled at once on warm and dry soils where they will be safe from frost. The soil must be in fine condition, or the seed will not germinate; but to make safe of it growing it may be steeped in water for twenty-four hours, then drilled, with the help of a few fine dry ashes to keep it from clogging in the drill; 6 lbs. per acre is a good quantity, some sow less, but we think it is risky, and the Mangold crop is too valuable to play tricks with.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1897. March and April.	Barometer at 32°, and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday .. 28	29.332	50.2	48.0	S.W.	47.2	56.1	45.7	76.9	40.3	0.113
Monday .. 29	29.446	42.2	36.7	N.W.	45.9	49.3	38.1	94.3	30.9	—
Tuesday .. 30	29.634	35.1	33.6	S.W.	44.7	51.6	26.8	83.1	20.5	—
Wednesday 31	29.371	46.6	43.8	S.W.	43.1	53.1	34.7	74.3	30.1	0.413
Thursday.. 1	22.009	34.8	34.4	N.E.	43.3	45.1	33.9	74.1	31.4	0.010
Friday .. 2	29.675	39.2	36.7	N.	42.2	47.3	34.9	97.1	31.7	—
Saturday .. 3	29.561	40.4	38.9	E.	42.1	45.6	35.4	68.8	24.7	—
	29.434	41.2	38.9		44.1	49.7	35.6	81.2	29.9	0.536

REMARKS.

- 28th.—Rain from 3 A.M. to 6 A.M., and 10 A.M. to 11 A.M., and storm rain at 7 P.M.; overcast and windy day, but gleams of sun.
 29th.—Brilliant early; alternate sunshine and cloud during day.
 30th.—Fog early with sun visible, clearing gradually, but hazy all morning; bright afternoon.
 31st.—Overcast, with frequent spots of rain in morning; alternate showers and sunshine in afternoon.
 1st.—Wet snow till about 10 A.M., and damp all morning; bright sun from 3.30 P.M.
 2nd.—Fine with frequent spells of sunshine.
 3rd.—Overcast day, with spots of rain at times.
 An average week for the season, with sharp grass frosts on several nights.—
 G. J. SYMONS.



BARR'S "LIGHTNING" RUNNER BEAN
A valuable acquisition, bearing in abundance clusters of pods, remarkably early, and of delicate flavour. Per Half Pint, 2/-.

BARR'S MONSTROUS LONG-PODDED BROAD BEAN.
The earliest, largest, and most productive of long-podded Broad Beans, and of fine delicate flavour. Per Quart, 2/6; per Pint, 1/6.

BARR'S "LEMON GLOBE" ONION.
A grand exhibition Onion, handsome in form, of large size, mild in flavour, and a good keeper. Per Packet, 1/-; per Ounce, 2/6.

FLOWER SEEDS.—Barr's Specialities for 1897.

NEW LARGE-FLOWERED CRESTED BEGONIA.
A splendid novelty, the large handsome flowers having crested combs, colours brilliant and varied. Per Packet, 3/6 and 5/-.

BARR'S SUPERB FRINGED PETUNIAS.
Flowers of immense size and deeply fringed, colours rich and varied. Per Pkt., 2/6 & 3/6.

BARR'S Extra Selected LONG-SPURRED COLUMBINES.
Mixed, flowers of great beauty in form and colour. Per Packet, 2/6.

BARR'S NEW SEED GUIDE FOR 1897
will be sent free on application.

BARR & SONS, 12 & 13 KING STREET, LONDON.
Nurseries at LONG DITTON, Surrey, near to Surbiton Stn., S.W.R.

RICHARD PANNETT, Florist, Chailey, Sussex,
Begs to offer DAHLIAS, 3s. per doz.; NEW FUCHSIAS, 9d. each; ditto of 1896, 4s. per doz.; CARNATIONS, 6s. per doz.; NEW ZONALS, 7s. per doz.; ditto of 1896, 4s. per doz.; all in first-class varieties. Postage 6d. per doz. extra. See Catalogue, which contains full directions How to Grow, Show, and take Prizes. Exhibitors would do well to consult this Catalogue.

BEGONIAS.

Double and Single, Gold Medal Collection, for Conservatory and Exhibition, the largest and best in the trade. See Catalogue. **BEGONIAS FOR BEDDING**, superb quality, Double, 6s. and 9s. per dozen; Single, to colour, 5s. per dozen, 35s. per 100; 10 colours mixed, 4s. and 28s.; fine mixed, 3s. and 2s.

B. R. DAVIS, YEovil, YEovil, SOMERSET.

SEARCHERS AFTER
TRUE STOCKS OF
GARDEN PEAS
SHOULD APPLY
TO PENNELL & SONS
LINCOLN FOR
THEIR NEW
BOOK OF SEEDS.

150 ACRES Of Trees & Shrubs.

In the finest possible condition for the Villa, the Mansion, the Plantation, or the Game Covert. All in vigorous, healthy condition, not stunted, starved, or closely grown and drawn. Carefully and frequently moved, and the roots consequently are a mass of fibre, ensuring safe removal when sold.

NEW CATALOGUE, with descriptions of above, and of many Rare and New Plants. Post Free from

CLIBRAN'S Nursery, ALTRINCHAM
Also at Manchester, Bangor, and Llandudno Junction.

LILIUM AURATUM.

The beautiful golden-rayed Lily of Japan. Magnificent for pots in the greenhouse, or for growing in the open garden. Deliciously scented, quite hardy. Planted now will bloom splendidly during the summer and autumn. Extra fine roots, 10 to 11 inches circumference, per doz., 7s. 6d.; 6 for 4s.; or 25 for 14s. Grand selected roots, 11 to 13 inches circumference, per doz., 12s.; 6 for 6s. 6d.; or 25 for 21s. All post or carriage free for cash with order.

DANIELS BROS., Town Close Nurseries, NORWICH.

CARNATIONS.—Clearance Sale.

A grand collection of choice named double flowered, in beautiful variety, including all the finest sorts. Strong plants from single pots, correctly named, per doz., 4s. 6d.; six for 2s. 6d.; or 25 for 8s. Double crimson Glove, deliciously scented, per doz., 3s. 6d.; six for 2s.; or 25 for 6s. 6d. Packing and carriage free for cash with order.

DANIELS BROS., Town Close Nurseries, NORWICH.

CHRYSANTHEMUMS. CLEARANCE SALE.

A splendid collection, including all the most beautiful and popular of the Japanese and incurved varieties; strong, well-rooted cuttings, correctly named, per doz., 1s. 6d.; per 100, 10s. 6d. Extra choice sorts, per doz., 2s. 6d.; per 100, 15s. Six grand new exhibition varieties splendid, the set 3s. 6d. All post free.

DANIELS BROS., Town Close Nurseries, NORWICH.

FUCHSIAS.—Clearance Sale.

A magnificent collection of superb double and single flowered varieties, including the newest and most beautiful sorts in cultivation. Splendid for pot culture or the garden. Strong young plants, from single pots, correctly named, per doz., 2s. 6d.; six for 1s. 6d.; or 25 for 4s. 6d. Extra choice sorts, per doz., 3s. 6d.; six for 2s.; or 25 for 6s. 6d., post free.

DANIELS BROS., Town Close Nurseries, NORWICH.

FERNS A SPECIALITY.

We have an immense stock of all kinds of Ferns, Stove, Greenhouse, Filmy, Hardy Exotic, and British, including many very beautiful varieties, rarely seen but which ought to be more generally grown. Catalogue free on application.

W. & J. BIRKENHEAD, F.R.H.S.,
FERN NURSERIES, SALE, near MANCHESTER.

ORCHIDS.

CLEAN HEALTHY PLANTS AT LOW PRICES.

Always worth a visit of inspection. Kindly send for Catalogue.

JAMES CYPHER,
Exotic Nurseries, CHELTENHAM.

ASPARAGUS.

April is the best month to plant this delicious and excellent Vegetable. We can supply—

GIANT ASPARAGUS.

Strong, 2 years .. 3/6 per 100, 30/- per 1000.
" 3 " .. 5/- " 40/- "

CONOVER'S COLOSSAL.

Strong, 2 years .. 5/- per 100, 40/- per 1000.
" 3 " .. 7/6 " 60/- "

DICKSONS Nurseries, CHESTER



Journal of Horticulture.

THURSDAY, APRIL 15, 1897.

ALTERATIONS.

AFTER nearly forty years of occupation by the *Cottage Gardener and Journal of Horticulture*, the premises of 171, Fleet Street need and must have thorough renovation; the nature of the alterations which have been decided upon are extensive in scope, and some months must elapse before they can be completed. The preparatory work will be no small item, for, from cellar upwards, the building must be cleared of its contents; tons of blocks for illustrations and tons of books, all must be removed. The accumulations of years must be examined, sorted, and classified as useful and useless, and dealt with accordingly—then follows the structural work.

A new roof is to be provided, and a new staircase from the bottom to reach it, and all the several floors on the way. How, then, can the routine business of editing, type-setting, and all the rest be conducted? It simply cannot be conducted there, and an exodus is imperative. The compositors will troop down the ten flights of stairs this week for new quarters already procured not so near the clouds. The Editor has provided for himself, preferring the suburbs and the breezes from the Surrey hills to the City, so densely packed as it will be during the coming summer. The publishing department and advertisement contingent must perforce follow as soon as the head of all can find them, as he hopes, something like a quiet retreat outside the hurly-burly of the great thoroughfare with all the crush and bustle and din for which it is notorious. By-and-by it will be necessary, when the matter is settled, to make the chosen locality known for the usual business purposes.

In respect to the Editorial department, there can be no waiting. The young lions are panting to be out of the Fleet Street den, and the old one must perforce go to keep them in order. Before the week is out they will be in the southwestern wilds, with all their paraphernalia; and thus it is that all those readers who are likely to seek advice on gardening matters, or who may wish to send flowers to be named, eelworms to be examined, mildews to be microscoped, insects to be identified; diseased Tomatoes, Cucumbers, or anything else, to delight Mr. Abbey; fruits to be

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dissected; samples of sickly plants or sound ones; in fact, whatever they may desire to place before the Editor, including articles for publication, from young probationers to old practitioners, from amateurs and gardeners, all should be addressed, not to Fleet Street as usual, but direct to Mr. J. Wright, 8, Rose Hill Road, Wandsworth, London, S.W. They will cost no more, while they will be more quickly attended to than if sent to the old address, and then, as they must be, re-directed.

This notification is made as prominently as possible in the interests of all—readers, writers, editors, and clerks. A few mistakes may occur, but it must be the desire of all that they be reduced to a minimum. "Ah! preparing for the Royal Jubilee," will be the remark of passers-by when the renovations are in progress. Be it so. More will no doubt be heard of the great event before the season is over, and then, all being well, the "Journal" will have a Jubilee of its own next year.

RECORD REIGN SHOWS.

THERE is an unusual amount of activity in every section of society this season to fitly celebrate the completion of the without precedent reign of our beloved Queen, that it would be odd indeed if gardeners, who are amongst the most loyal and admiring and law-loving and law-abiding of citizens, should be behindhand in signalling that glorious reign by every means in their power. We may take it that many horticultural events will be celebrated with greater enthusiasm than usual; that all the customary annual shows will contain either some new feature, some enlargement of benefits, or some alluring and interesting development.

Many new shows will be started, some old ones revived, and some perhaps will strike out on special and original lines. We have evidence of this state of things in your advertising columns this week. I will take two of them—a large one and a small one—of which I have some personal knowledge to illustrate my meaning, and Shrewsbury shall be my large illustration. We all know that as a provincial show this is second to none in ordinary years, but this year, the twenty-second year of its existence, and because of the Queen's record reign, the Society is considerably enlarging its borders, and its show on the 18th and 19th of August is to be a Great Royal Commemorative one to illustrate the advance in horticulture during the sixty years of Her Majesty's reign. The cash prizes offered in the Society's schedules for 1897 amount to nearly £900, with special cups, medals, and other extra awards.

In addition to this, the Royal Horticultural Society are sending down a deputation consisting of the President (Sir Trevor Lawrence, Bart.), and selected members of the Council to co-operate with the officers of the Shropshire Horticultural Society, and to award a gold Banksian and a silver Knightian medal to special productions (particulars of which will be found in the Society's schedule), besides other medals and awards; and the Worshipful Company of Fruiterers (London), are offering their gold and silver medals in the fruit classes; whilst in addition to these the Veitch Memorial Trustees are offering the Veitch Memorial medal and £5, in addition to the first prize of the Society, for a decorative dessert table. Shrewsbury has done great things in past years, but this year will be a record year for it there is not the least doubt. May we all be there to see.

Now, my lesser illustration is the small show advertised in this week's Journal—the Potato Show at Radcliffe-on-Trent, near Nottingham. Having lived at Radcliffe and in the neighbourhood for a good many years, once on a time, I can vouch for the *bona fides* of that advertisement. What the Radcliffe people do, they do well; "thorough" is their motto, and the two gentlemen who have offered the prizes may be relied upon to carry out to a complete success the somewhat unique show, backed up as they are by a band of workers who do not know what it is to fail in anything they undertake to do. Both gentlemen (Messrs. Middleton and Yates) are Potato enthusiasts, and the former, I believe, was not unknown at the Crystal Palace in the days of Mr. McKinlay's Potato shows. The show will assuredly be a very interesting, and should be an instructive one, and I am given to understand that the judging will be on the lines of the R.H.S. code of judging.

These two shows will serve to demonstrate to all whom it may concern that gardeners are not going to be the last in celebrating the record reign of Her Majesty the Queen, a Queen who has, all through that reign, been a good friend to gardeners and gardening.—N. H. P.

OUR HARDY PLANT BORDER.

(Continued from page 224.)

FORGET-ME-NOTS.

WHEREVER any attempt is made to produce a spring or early summer display of hardy flowers the Forget-me-nots are indispensable, and they, moreover, furnish a colour that is all too rare in our gardens. Their graceful habit, and the interesting, even though fanciful, associations connected with the popular name also render them favourites with all garden lovers. The majority have besides a strong practical recommendation to the favour of those who find the maintenance of a varied and extensive display of outdoor flowers a strain on their resources—namely, they are easily increased either by seed or division.

They are mostly adapted for situations where it is sometimes difficult to insure success with other plants, and three positions may be mentioned for which respective groups are suitable—*i.e.*, a rockery or alpine garden, where the dwarf species of *Myosotis*, such as *M. azorica* and *M. alpestris*, will succeed; moist banks or low spots near water, for which *M. palustris* is particularly fitted; and shady shrubbery or woodland path sides or borders, where *M. sylvatica* will succeed. There are special examples of partialities, but *M. dissitiflora*, for instance, will thrive almost anywhere, provided it is not excessively dry, and all the dwarf forms of Forget-me-nots are useful for spring flower beds or borders.

It may be well to point out the chief characters of these species before detailing the culture we have found successful, and the first to be considered is *M. alpestris*. For colour, habit, and general usefulness this deserves a foremost place in every garden, at least that is our experience founded on careful and extensive trials of all the Forget-me-nots in general cultivation. When grown upon a rockery this plant presents the characters of a true alpine, 3 or 4 inches high, compact, with abundant short spikes of flowers, but in ordinary beds of fertile soil it is nearly double the size, though still compact, with vigorous spikes of moderate height, bearing flowers closely set from the apex to the foliage, and produced in such numbers that the plants appear to be almost tufts of flowers alone. The flowers, too, are of good size, a brilliant blue, heightened by contrast with a yellow eye, and possess the additional recommendation of becoming fragrant late in the day. Excellent strains of seed are obtainable of this Forget-me-not, from which thousands of plants can be quickly and certainly raised, and they come so even and true that the slower process of increase by division or cuttings is unnecessary.

Two varieties of *M. alpestris* are, in our opinion, the finest of all Forget-me-nots for spring gardening when they can be had quite true, namely, *Victoria* and *Distinction*. With regard to the former of these, however, we have had some difficulty in securing seed true to character. *Victoria* is an improvement on the common type of *M. alpestris*, being compact, the flowers large, and the colour bright. *Distinction* as we have had it is similar, but if anything more compact and floriferous. Both are admirably adapted for culture in pots for early flowering under glass, a use which is fully appreciated in many gardens where diversity is requisite in the occupants of greenhouses or conservatories. They must, however, have cool situations, for in a moist warm house they are quickly drawn up and spoiled. Two other varieties of *M. alpestris*—*i.e.*, the white and rose coloured, are attractive in some degree, but they are not so well adapted for massing as the blue forms.

Taking it in all its points *M. alpestris* has proved in our experience one of the most useful Forget-me-nots that can be grown in quantity, and we have had no difficulty in procuring seed that produced plants of high quality, equally as beautiful and serviceable as the best selections that receive varietal designations.

Next in importance comes *Myosotis dissitiflora*, though perhaps some would be disposed to give this the first place. Certainly where very early flowering is required it would be most useful; but it is less compact than *M. alpestris*, though a free and continuous flowerer in suitable situations. The flowers are large, rich blue, on spikes a foot or more in length.

For general use in damp situations and heavy soils the common Marsh Forget-me-not, *M. palustris*, is both a charming and serviceable plant, easily increased, of good constitution, and a persistent flowerer. The corollas are large, of a particularly bright blue with a yellow eye, and the plants look well in masses or lines; but it is rather tall for the latter purpose, except in shrubbery borders.

The Wood Forget-me-not, *M. sylvatica*, is usually the tallest of those in general culture, and its looser habit of growth, combined with the fact that the flowers are more distantly placed on the spikes, gives it a rather more weedy and straggling appearance. It

is, therefore, not so well adapted for masses in borders, but scattered amongst trees or shrubs it has a pleasing effect, and succeeds better than most of the others do in similarly shaded situations.

The general culture of the Forget-me-nots already named is simple, and can be summed up in a few words. They are all readily raised from seed, which should be sown at the first convenient time in April, the seedlings being transplanted to their position in the borders or elsewhere as soon as they can be safely moved. A well dug, moist, and fertile soil gives the best results with these specially recommended, and the plants are almost equally pleasing either in masses or lines.

After the first season the perennial species, particularly *M. alpestris*, require to be lifted, divided, and transplanted into fresh soil, and a large stock of strong plants can be thus secured for the current season's effect, March being a suitable time for the operation if the weather be favourable, or it can be done early in the autumn in preparation for the spring work. When a large quantity has been raised from seed some diversity will always be found in the habit, size, and colour of the flowers and the length of the spikes; it is therefore advisable to mark some of the best with labels or sticks for division; a more uniform character is thus obtained, which is important where the plants are employed in lines, but is less requisite in large beds.

On warm soils or in sheltered gardens autumn sowing can be practised with success, and we have frequently adopted this method; but on our cold soil it does not give encouraging results. When grown in large masses some of the *Myosotis* are liable to a fungoid disease of the nature of mildew, which spreads very rapidly, and appears to threaten the destruction of the plants, but with liberal cultivation they seem none the worse the following season, though the loss of so much foliage must be weakening. Fortunately, the disease rarely appears until the flowering is nearly over, but the plants are greatly disfigured afterwards, and a weak application of Bordeaux mixture has seemed to have little preservative effect upon the foliage. A soil well enriched with old manure, or dressed with a light sprinkling of superphosphate early, with nitrate of soda later in the season, the latter being used at the present time for instance, will produce vigorous plants that will give satisfaction in every respect.—A COUNTRYMAN.

PRECEPT AND PRACTICE.

(Continued from page 294.)

AVENUES have been regarded by some of our most accomplished latterday artists as being somewhat of a mistake. It is a question on which ripened judgment will be strong enough to bear the weight of personal opinion. An avenue is certainly one of those daring touches which only a master hand is capable of introducing into his natural picture successfully. There can be no question but what it is a phase of work leaving no margin for those common errors which have entailed from some a sweeping condemnation. The question for us to now consider, like others which through life may often arise, is not of to be or not to be, the onus of that decision probably not resting with us, but the responsibility of laying down the lines on sound principles which we must not evade. I suppose that when, some half century ago, a certain nobleman desired to have an avenue as an approach to his mansion his imagination could never conceive the effect of a double line some half mile in length of Lombardy Poplars in their prime planted in a space so contracted that it was quite a triumph of coachmanship for carriages to pass each other in safety.

Neither could those who planned and planted a century since a short, broad avenue of Elms have foreseen the overpowering effect its matured age would have upon the limited local surroundings. The above are truthful types still existing, and sufficient in themselves to mar the features of the landscape. The latter example, certainly, would not be so bad, as it starts from a noble entrance; but the abrupt finish, owing to the road turning at right angles (to avoid a contiguous property), whence the trees were discontinued, leaves the additional bad impression that the avenue leads to nowhere. In each case the trees are fine specimens of their kind, and one can well understand the feeling which has led successive owners to spare them and tolerate the false position. There is not one of our youngest subjects of bothydom who could not see these and other errors as grave in this direction when developed by time. That is too late—"Too late to mend." Conjure these visions up in your mind's eye, and you will never be guilty of such near-sighted policy.

The carriage road, whether it takes the form of an avenue or not, has, as its name implies, a primary object—it is its right of being; yet we may note examples which seem to exist only upon

sufferance, so undecided are they where to begin, which way to go, and where to leave off. Here is one, however, of a very satisfactory character, and which imparts its full quota of dignity to a gentleman's park. Even a stranger, once within the gates, would feel it unnecessary to ask his way to the mansion, although not immediately visible. Its chief object is to reach the mansion, not as the crow flies, which is, of course, an excellent plan for aerial travelling, nor do its lines follow perversely a number of meaningless petty twists and turns. It is simply what it professes to be, and does simply what it professes to do in the best possible manner. Starting from the lodge gates on open comparatively level ground, for some distance our common-sense carriage drive is fairly straight, for there are no reasons for it to be otherwise until the ground rises nearer to the residence, when it takes a rather wide sweep for a very ostensible purpose, such purpose having been further emphasised by the introduction of some tree groups on the convex side of the curve. Then sweeping up to and past the hall door it continues its sensible course to its exit (or entrance as the case may be) at the other side of the park. Ample accommodation has been left opposite the hall door for those short exercises our waiting whipmen delight to perform, leaving them no excuse for slicing down or cutting up the well-kept verges.

Drives need not detain us long, though their object is to some extent distinct from carriage roads, being the means of conveying the traveller to and exhibiting all the natural beauty of a demesne, and to avoid other points less desirable. Some are so cunningly contrived, that even within a circumscribed area the illusion of having a much greater space and freedom than really obtains is perfect. Unlike our carriage road or avenue, the object of a certain drive which I will attempt to describe is that of being the medium by which at all seasons, and one may say in all weathers, all the most striking natural or created beauty is viewed to advantage. My ideal drive—I must add it bears that name, "The Drive," and appears to be appropriate—runs for several miles in the most satisfying manner, and although it passes in its course through some beautiful bits of woodland scenery, where banks and plantings of flowering shrubs have been freely introduced, the exchange from gravel to grass never prohibits, even in wet weather, the enjoyment of using it, sufficient hard material having been employed in its formation to render this feasible. Through the glen, or following up and mounting to higher ground in graceful curve or graduated incline judiciously planned, peeps are afforded of the outlying country without disclosing the proximity of the boundary, to which, indeed, it is often invisibly near.

The primary study of these free and flowing lines is accommodation to the ground plan—natural formation of the ground. All other matters, essential as they are, are the filling in of that plan by taste and skill in planting, or making manifest natural beauty, of which more anon. We must never lose sight of the fitness of things to their purpose—beauty of purpose, and it matters not whether that has a prior existence or is a subsequent creation of art, the distinctive object in some shape or form must be present, or the purposeless and the puerile court condemnation from the cultured eye. We may note in some instances how caprice alone has misled the designing hand to curve or even double curve S fashion on flat ground, with no apparently ulterior object. Now a curve is very graceful if it has, or has given to it, a reason for existing. There are hundreds of such curves to be found in roads, walks, or paths, begot of caprice and existing on sufferance, which await but a little tasteful planting at the convex side to provide the purpose, the meaning, the object, even though it is an afterthought.

There are very good reasons why these, which are but the narrow suggestions upon a very broad subject, should have the attention of our young gardeners, for I venture to predict that the future will have strong claims upon them in this direction. The fetters of formality which have long tied the gardeners' hands are broken; we are emancipated, and if we choose to call it a new fashion it is one allowing of full and free scope for natural harmony, varied beauty, enlarged ideas. Already, in several places, I have seen the garden flowing over the whole demesne and the gardener running after it, as he should do, making a bog garden here, a rock garden there, planning and planting, sowing, and reaping the fruits of his extended sphere in picturesque gardening. But let no youth think this is any rough and ready method, planned in haste and performed in a hurry, for hasty flights bring ignominious falls. Even plain, natural features are preferable to overstrained specimens of ingenuity, in which characteristic scenery is obliterated and startling incongruities await one at every turn, in which, perhaps, we hear of hundreds, even thousands of pounds being spent. This may be magnificent, but it is not gardening.—AN OLD BOY.

(To be continued.)

FLOWERS FOR SCHOOLS.

If one regard the delight inspired by the presence of flowers, their suggestiveness and influence, there is no more fitting place for them than the elementary schoolroom. Children look at flowers with clean eyes; they are to them a source of wonderment and delight. But that must not be all. "The wisdom of God," says Sir Thomas Browne, "receives small honour from those vulgar heads that rudely stare about, and with a gross rusticity admire His works." One wonders that so few teachers break away, at times, from the thralldom of grant-earning, missing entirely to take their children, in imagination at least, a stroll through "fresh woods and pastures new." I referred lately to a society whose endeavour is to encourage the young to take an interest in the beautiful, limiting the effort to the selection of engravings from the old masters. "Why," I repeat, "cannot these kindly æsthetics present a few flowers occasionally? They would be far more highly appreciated than the costliest engraving of the old masters." But so much the more would they enjoy a simple flower if its structure were explained and understood. If there be one subject, after the so-called essential subjects, that should be taught, in country schools at least, it should be plant life. Not only would such teaching be of direct advantage to those whose probable occupation would be on the land, it would supply the kind of instruction most needed to cultivate the faculty of exact observation and the habit of reflection. Such a subject might be made in the hands of a thoughtful and earnest teacher a really more valuable instrument of education than the so-called three R's.

It is satisfactory to learn that Surrey has started a system of school gardens. But Surrey, it appears, is to the fore in the matter of gardening for schools—"continuation" and elementary. Nearly 500 boys and youths now receive practical instruction on the soil itself, and they appear to be doing excellent work. But to come more particularly to my immediate subject, flowers in the schoolroom. There need be no difficulty with regard to the expense of supplying regularly a few flowers for the teachers' desk. In country schools the children themselves would be pleased enough to do this. I remember an instance in which an elderly teacher, fond of what Charles Kingsley pithily called the "field and wild," would weekly make one home lesson in the season of spring and summer "a collection of wild flowers (named)," leaves of forest trees, grasses, or Ferns. The children would be taught the names, and the structure and peculiarities of the exhibits would be dealt with in a further lesson. If these were of no other use beyond exercising the faculties cited above the lesson would be valuable; indeed to the future farm labourer almost invaluable, while to every villager it would suggest the means of opening up profitable and interesting ways of occupying his leisure. One has heard of that little couplet of Dr. Watts about the unmentionable one finding "some mischief still for idle hands to do." He might search in vain in such a village as I am thinking of for idle hands. Where profit and pleasure are both concerned neither hands nor head are idle.

Far beyond, however, the pleasure of enjoying a flower, its beauty and fragrance, is the knowledge one may gain of its structure and uses. One thinks of Darwin and the Polyanthus. For the better part of a hundred years florists had noticed a difference in the structure of the Polyanthus, raising batch after batch of seedlings, and contemptuously tossing aside those in which the stigma reached the mouth of the tube as "pin-eyed," and cherishing carefully those in which the stamens were longer as "thrum-eyed." There were two kinds therefore, said Darwin, and there is a permanent difference. What is the reason for this? And then, after a long season of observation and experiment, he came to the conclusion that it was to encourage cross-fertilisation and increase fertility.

Another way of encouraging a taste for gardening and the study of plant life was to give each of a score or more boys a single seed of a Sweet Pea, Scarlet Runner, Nasturtium, or Canary Creeper, and offer a small prize for the best plant in a pot raised from the single seed. Many of that old pedagogue's pupils have been grateful for thus introducing them to a source of innocent, healthful recreation and unbounded delight. Some of these fortunate boys are head gardeners now, and although many of their schoolfellows are receiving salaries of £100 a year to their £50, they would be loth to exchange their green lawns, bright sweet flowers, and blue skies for a desk in the clearing house or the railway stations. They would far rather prefer the control and management of a garden than sit all day long on an office stool.

The greatest pleasure to be derived from flowers is by growing them, watching their development from day to day, and attending to their necessities. Nature is full of wonders and problems, and the gardener of all others has the best opportunity of studying

them. There is nothing more marvellous than the germination of a seed and its subsequent growth. I hold in my hand a tiny pellet of starch, enclosed in a vellum case, inert, and apparently lifeless. The germ is asleep, and it is in the power of a child to awaken it and watch its growth to perfection. It is, of course, impossible to grow flowers to perfection in a schoolroom, mainly on account of the dust and impurities of the air. Where there is no stint of light, however, a simple Wardian case might be employed, or a few hardy plants might be grown on the outer window ledge. Then, of course, unless on the ground floor, there might be a difficulty in watering them. A cheap and substantial Wardian case might stand in some prominent position. In this Ferns, a small Palm, and Lycopodiums might be grown; even a flowering plant, Fuchsia or Geranium, might be placed in the case. It would last for several days at least, and add a little colour to the cheerful greenery.

But a more successful effort might be made by the playground walls in growing the commoner kinds of annuals, some of them more beautiful than greenhouse exotics. Some 10 to 12 inches in width of the pavement must be removed close under the wall, to a foot in depth, then some rubble for drainage, and good meadow loam. There should be a 9-inch board, 1½ or 2 inches thick, as a protection, and to hold up the soil. A small-leaved Ivy, a Euonymus, cut in and trained close; or Ampelopsis Veitchi might be planted to serve as a background. These, however, could be dispensed with. Then comes the garniture. Annuals chiefly, though a few bulbs, Snowdrops, Scillas, and Crocuses might be planted, and a few patches of the cheerful white Brassica and Wallflowers. Towards the end of April the seeds of Nasturtiums, Canary Creeper, Convolvulus, and Scarlet Runners could be sown, and either trained to pea sticks, string, or wire. Where there is a will there is a way! This wall garden, as one might call it, should be taken care of by the children themselves under charge of the teacher. In most schools there are children not sufficiently robust as to join in the games with the stronger. The little plots might be cultivated in common, but the better plan would be to allot to each of, say, a dozen volunteers a yard or two, for which the young tenant should be held responsible. I trust to be able to return to this subject.—HERGA.

THE "NEW" VEGETABLE—CHAYOTE.

MRS. MILAND writes respecting the new vegetable, Chayote—When writing before I did so from memory, and have now procured the "Graphic" of March 20th, and forward a copy of the paragraph therein relating to the new vegetable, "Chayotte." I shall be much obliged if the Editor will give any information he may obtain on the subject.

"A new vegetable has been imported from Japan. It is reported to combine the flavours of the Artichoke and the Asparagus, and to be as easily cultivated as the Potato. The French, who are responsible for its introduction, call it 'Chayottes,' and it has already figured largely at the most *recherché* and delicate suppers in Paris. Especially as a salad is this new vegetable to be commended."—"Graphic.")

[Thinking it best to go the fountain head for information, we wrote to the eminent firm of Messrs. Vilmorin-Andrieux et Cie, Paris, who obligingly replied as follows:—"The 'Chayote' is the well known fruit of *Sechium edule* (Cucurbitaceæ) grown in the West Indies, also in Sicily, Algeria, &c., but very little used as a vegetable outside of those countries. Some of the firms here, making a speciality of exotic fruit and vegetables, receive a few consignments of Chayotes every season, and no doubt the note that appeared in the paper mentioned refers to some 'diners' where Chayotes were tested. It has been much vaunted from time to time, but its culture in Europe does not appear to make much progress, if any. We may add that it is a rather peculiar fruit, requiring to be planted whole, the roots starting at one end and the stem at the other. This is all we have to say about the Chayote."

We thank Messrs. Vilmorin & Co. for saying it. According to Johnson's "Gardeners' Dictionary" this "new" vegetable discovered by the "Graphic" correspondent was introduced to this country from the West Indies in 1816. It is also called "Choko"—to fatten, and the Dictionary says "hogs are fed on the fruit in Jamaica." We only know of one place where it is grown to any extent in England, and there it is called "Chou Chou," which is the Cuban name for this plant.

Dr. Hogg has said in his "Vegetable Kingdom" that *Sechium edule* is called "Choko" in South America. "The fruit is green, shining on the outside, whitish and fleshy within, varying in size. Each contains one seed, which is placed at the very top of the fruit, and is sometimes an inch long; when it is ripe it protrudes a little, and puts forth many fibres at the extremity. In many of the West India islands the

inhabitants use the fruit in soups and puddings, or boil and eat it with their meat, as a substitute for greens and Turnips, in which state it is regarded as wholesome and refreshing, but it is too insipid to be much cultivated. There are two varieties of this found in Cuba; one with soft bristles over its surface, and the other quite smooth."

It is evidently the variety with "bristles" that is grown by Mr. Thomas Rochford in his wonderful establishment in Hertfordshire. We had one of the two fruits figured that he kindly cut and presented, the other cooked. The figure is reproduced. The one that was cooked was similar to a full flavoured Vegetable Marrow, and may for all practical purposes, as grown by Mr. Rochford, be described as a winter Vegetable Marrow, for the fruits are produced throughout the winter months.

The plants are trained to the roof of a very large span-roofed house, each when in full growth covering a large amount of space, probably 300 or 400 square feet. The fruits, which are not produced in any great abundance, are usually in pairs at right angles with each other at the end of a string-like stem 15 to 18 inches long. The temperature of the house ranges from 50° to 60°, and the culture might perhaps be profitable if the fruits were sold for half a crown each.

We do not suppose that Mr. Rochford expects them to "pay." With 20 to 30 acres of glass he can well afford to devote a house to the culture of a novelty, so that he may enjoy the luxury (for he is a generous hearted man) of giving something to his friends that they are not very likely to grow at home.

The Parisian fruits, which came in so handy for affording material to the "Graphic" correspondent for a "catching" paragraph, were, as may be inferred by Messrs. Vilmorin's letter, imported, and their flavour when naturally grown in their native habitats for pigs and Parisians may be somewhat different from that possessed by those grown artificially in this country; and, besides, French cooks are so skilful that they can make almost anything good, and add "flavours" to suggest various comparisons. No doubt the *Sechium*, Chayote, or Choko, is "as easily cultivated as the Potato" in its native climes, and we can understand its growing ten times faster and farther, but it is evidently not so grown in France, and is less likely to be so nearly naturalised as the Potato in this country. The "Graphic" might perhaps complete its little sensation by giving an illustration of Mr. Rochford's plants, and astonish its Parisian correspondent.]

HARDY FLOWER NOTES.

A STORMY month was March, and its winds and rains and snow robbed us of much of the beauty of the Crocuses. We thought of them sadly amid the downpour, recalling Herrick's lament over the Daffodils, which, he said, "haste away so soon," or over the Primroses, which "die unmarried ere they behold Phœbus in his strength." Such was the fate of many of the Crocuses. They shielded their precious pollen in their silken cloaks until these delicate and beautiful fabrics were turned into soaked and colourless pulp. We could only look on sadly. A few might be covered, but these were the ewe lambs of the flock. The others had to succumb to the gales and rainstorms. Vain are these regrets. The past cannot be recalled. The present is with us to solace and cheer. The garden is full of charm. It is a season of flowers when Flora's garland is beautiful indeed.

The Daffodils are too numerous to do justice to here. Fine are they now, but many are yet to open before the Poet's *Narcissus* is in full beauty with its white perianth, and crown with crimson or saffron rim. The great *telamonius plenus* is not over as we write, and its great tasselled yellow blooms contrast well with the pale flowers of *pallidus præcox*, or look dark beside the exquisitely coloured trumpets of Henry Irving. Queen Bess was the first of the *medio-coronati* or chalice-cupped Daffodils to flower. Very beautiful, too, is this flower, although we prefer the many trumpet-shaped varieties which in the border wave to the winds, nod from the rockeries, or in the grass bow gracefully before the breeze. There has of late been some discussion of the question of sun or shade for Daffodils. It is greatly a question of gardens. In some the white-coloured varieties require shade, but here nearly all are planted where they receive a good share of sun in summer. This has been found an advantage, and has added greatly to the free-blooming of many delicate sorts. I am also of opinion that many Daffodils will thrive better in the grass or as rock-garden flowers than if planted in the borders. Where one grows many bulbous plants the task of annual lifting becomes a physical impossibility in view of other calls upon time and attention. If one can in any way avoid this frequent labour it is decided advantage. Planting in grass is very beneficial to some *Narcissi*, but it is not every one who can afford them this treatment. Those who cannot do so,

but can place these favourite flowers on well-drained rockwork, will often secure the desired result. The Rev. G. H. Engleheart, one of our best authorities, says in a contemporary of *N. pallidus præcox*:—"On some soils it will live for a few years if planted on turf, but I know no other way of keeping it alive." Although I have grown it in the border for the last ten years with success, this pretty Daffodil is finer on a sunny rockery where it has been for eight years without replanting.

A single bulb of a pretty pale-coloured variety, once sold by Messrs. Barr & Sons as *pallidus præcox* Blond d'Or, has been on the same rockery in full sun for the same number of years, and has increased into a nice little clump, flowering freely every year. With such varieties as *coronatus*, *Colleen Bawn*, and other white trumpets



FIG. 67.—SECHIUM EDULE.

growing in full sun is found to be the best here, and we mean to experiment still further in the direction of trying delicate Daffodils on sunny rockeries where they are carpeted over with other plants.

The various members of the *Primulaceæ* now in bloom add much to the garden's interest. Quaint and curious looking are the Jacks-in-the-Green—as the *Polyanthuses* are called—whose bracts are abnormally developed into leaf-like ruffs round the flower itself. In various colours and shades they brighten up the borders or the slopes or paths of the rock garden. Beautiful, also, are the other *Polyanthuses* and *Primroses*, whose bright hues and neat blooms show how attractive flowers of this family are. Less showy, but no less attractive in their own way, are the plants which for convenience sake we call the species. Only a few are as yet in bloom, among these being several varieties of *Primula marginata*. A beautiful little flower indeed is *P. viscosa nivalis*, quite as well known under the latter name alone without the specific one of *viscosa*. There are several varieties of *P. viscosa*, which has two or three synonyms, but none is prettier than this little white-flowered variety. The species was named by Villars, and the plants are found in the Pyrenees and the mountains of Central Europe. It belongs to the group *Auriculastra* and the section

Erythrodosa of the Synopsis of the European species prepared by Mr. J. G. Baker. The small white flowers are freely produced in umbels on viscid scapes; the rather small obovate leaves are dark green, with closely set teeth, and are ciliated and viscid, or clammy, on both sides. This Snowy Primrose is said to succeed well in light soil in any position on the rockery in which it obtains plenty of moisture. In this garden it does best on a partially shaded rockery where it receives a little of the morning and early forenoon sun. It is given an adequate supply of water in dry weather.

The *Aubrietias* are great favourites of mine. They succeed well here, and when fully in bloom the effect they produce is very fine. They flower profusely and seed freely, with the result that self-sown seedlings become very numerous, and these show great variation in shade of colouring, ranging from very pale lilac to almost purple or crimson purple. A named variety new to me, which was bought last year under the name of *A. grandiflora Wallacei*, has been among the earliest to cover itself with flower, although some others showed a few stray blooms. The flowers of this variety are not so large as those of some others, but are of a bright crimson purple, which makes a fair sized plant very effective hanging over the ledge of a stone in the rock garden. We cannot but admire these early flowers, which please everyone by their appearance ere winter has fairly gone. They are a foretaste of milder days, when the garden glows with colour and the delight of the lover of flowers is at its zenith.—S. ARNOTT.

CHEMISTRY IN THE GARDEN.

(Continued from page 247.)

WE have seen that a mechanical analysis of a soil is a simple but effective means of determining the quantity of stones, sand, clay, and organic matter contained in it. Practical gardeners can as a rule distinguish a good soil from a bad one by its appearance, but to those not satisfied with empirical knowledge the question naturally arises, "What constitutes a good soil?" In trying to determine really what a good soil is many things, widely differing from each other, must be taken into consideration, the most important being those ingredients which constitute the food of plants.

What are the constituents of plant food, and how are they determined? To answer these questions we must ask the assistance of the chemist, who in his laboratory can by analysis tell us the names of the substances which are found in soils, and also those which are elaborated and built up into the plant body. After careful research chemists have told us that thirteen chemical substances are found in all plants, and by experiments it has been found that, with two exceptions, all these are essential to plants if they are to live and develop. The names of the thirteen chemical substances are as follows: Carbon, hydrogen, oxygen, nitrogen, sulphuric acid, phosphoric acid, potash, lime, magnesia, iron, chlorine, silica, and soda. The two exceptions named above are silica and soda.

All the carbon and part of the oxygen found in plants has been obtained from the carbonic acid gas which is in the atmosphere, the remaining oxygen and the greater part of the hydrogen being derived from water. Given a good supply of air and water plants under favourable conditions have an unlimited supply of carbon, hydrogen, and oxygen. Soils to be of any value to plants as food must contain a supply of potash, lime, magnesia, phosphoric acid, sulphuric acid, iron, chlorine, and nitrogen. Do they? It will be a great help to us in answering this question if we examine the chemical analyses of a clayey soil, a loam, and a sandy soil; for then we shall not only be able to see if they contain the necessary constituents of plant food, but also the amount of it which each contains.

ANALYSES OF SOILS.

Constituents.	Clayey.	Loam.	Sandy.
Potash	0.83	0.36	0.11
Soda	0.09	0.05	0.07
Lime	1.16	0.83	0.19
Magnesia	0.67	0.47	0.13
Phosphoric acid	0.18	0.12	0.09
Sulphuric acid	0.12	0.05	0.02
Iron oxide	5.93	4.67	2.61
Chlorine	0.05	trace	trace
Alumina	5.65	3.16	0.86
Insoluble silicates and sand	78.44	84.18	92.35
Organic matter	6.73	5.93	3.04
Containing nitrogen	0.15	0.18	0.13
	100.00	100.00	99.60

The above analyses show us at a glance that all those ingredients which are needed by crops for their growth and development

are present in all three soils. By looking at the above analyses it will be seen that the greater part of the soil consists of insoluble silicates and sand, substances which are of no value to plants as food; but in our consideration of a fertile soil we must remember that the mechanical condition is quite as essential for the perfect development of crops as the chemical, and although the amount of actual plant food appears small it amounts to something considerable if calculated per acre. The top 9 inches of soil on an acre of land would weigh about 3,000,000 lbs. If 100 lbs. of a clay soil contain 0.83 lbs. of potash, 0.18 of phosphoric acid, and 0.15 of nitrogen, 3,000,000 lbs. would contain 24,900 lbs. of potash, equal to 200,000 lbs. of kainit, 5400 lbs. of phosphoric acid, equal to 45,000 lbs. of superphosphate of lime, and 4500 of nitrogen, which is equal to 30,000 lbs. of nitrate of soda.

We must not suppose, however, that the vast amount of plant food in an acre of land, as shown by an analysis, is in a form suitable to the wants of plants, for only a very small portion of the soil substances are of any direct value to crops as food. The soil is a substance of a very complex nature. The plant food in it is present in a variety of forms, some of which are soluble in the soil water, or may be dissolved by the acid sap which is exuded from the tips of growing roots; while others are insoluble in the soil water, and the acid sap cannot dissolve them. The plant food which is present in a form soluble in water, or which may be dissolved by the roots of plants, is called the *active* part of the soil, while the insoluble form is known as the *dormant*.

Agricultural chemists do not attach so much importance to the analysis of soil as they did formerly, but are now investigating the active part of soils, or that portion which may be dissolved in water or weak acids. The analysis of the active portion of soils will no doubt prove of much greater value to cultivators than a complete analysis of a soil, for while the latter method may show them how much plant food a soil contains, the former will tell them whether it is present in a form suitable to the requirements of our crops.

Before leaving the composition of soils it will be advisable, perhaps, to give as far as our knowledge goes a brief description of the form in which plant food is found in the soil.

Nitrogen is present in soils chiefly as organic nitrogen, which is of very little or no direct value to plants. There are also smaller quantities of ammonium salts and nitrates present, and it is from the last named that plants obtain their chief supply of nitrogen.

Potash is found in soils principally in the form of silicate of potash, and silicates of alumina and potash. It is also found in very small quantities as nitrate and sulphate, both soluble salts, and it is chiefly from these two sources that plants obtain their potash.

Phosphoric acid is found in soils in chemical combination with iron, alumina, or lime. All these forms are insoluble in water, consequently are of no direct value to plants. The acid sap of the roots of plants, and the carbonic acid in the soil water, will convert the insoluble phosphate of lime into such a condition that plants can absorb it.

Lime exists in soils principally as carbonate of lime, and also to a lesser extent as silicate, nitrate, phosphate, and sulphate. Plants absorb nearly the whole of the lime they need from one or the other of the three last-named substances. Magnesia is present in soils principally in the form of silicate and carbonate of magnesia. It is also found in very small quantities as sulphate and chloride, and these are the sources from which plants obtain their chief supply of this substance. Sulphuric acid is always found in soils in combination with iron, lime, potash, or magnesia; and plants may absorb their sulphur from either of these compounds.

Iron exists principally in the forms of iron oxides or hydrates; there are, however, nearly always small quantities of sulphate and carbonate present, and plants may obtain their iron from either of the two latter-named sources. Soda is found in soils either as silicate or chloride of soda (common salt). Chlorine is present in most soils, only in very small quantities. It is generally found in chemical combination with soda, forming chloride of soda, and it is from this source that plants obtain their chief supply of soda and chlorine.—W. DYKE.

(To be continued.)

HIGHGATE WOOD.—We learn that the Committee appointed to secure the Churchyard Bottom Wood at Highgate for the use of the public has been taking active measures for that purpose. About £15,000 remains to be raised to cover the purchase of the ground, and circulars have been issued to the public giving particulars of the project and appealing for aid. Highgate Wood, in the opinion of the Chairman of the Committee, is "one of the choicest and most sylvan pieces of woodland which is to be found anywhere within the five mile radius of Charing Cross." Mr. Lionel Curtis, 1 Great College Street, Westminster, is the Secretary of the Fund.

DUBLIN-BY-THE-SEA.

A LITTLE business on a wild March morning left a narrow margin of time for those pleasures dear to the gardener's heart—viz., a look in on a kindred spirit, a walk over comparatively new ground, and a talk over decidedly old subjects, yet ever new and fresh, with a little to say of what was seen. Visitors to Dublin—some of them, at least—have left us under the vague charge of being rather slow—"a little behind the times, you know." We know, at any rate, that the charge is somewhat vague, for one with whom I endeavoured to join issue upon that point clinched the only visible nail in the argument by triumphantly trailing his timepiece, testifying to the fact indisputable of our being twenty-five minutes behind the time. We grant it; but for other matters. Whew! not so fast, my friend; that was in pre-electric days of Dublin trams. What would you think of us now? Now that we have hitched the lightning on to our brand new, long-bodied, comfortably cushioned, neatly trimmed trams swiftly running to and fro as far as Dalkey-by-the Sea; and, be it known to those of frugal mind, for fourpence all the way.

From "The Pillar"—the pillar of the greatest salt, who really looks very small so far up on that splendid Corinthian column near the G.P.O.—a penny tram of the ante-electric type takes one to the Haddington Road, where the overhead wires and a waiting motor-car with its rakish-looking mast invite us to mount the upper deck to see all that we can see of Dublin-by-the-Sea. All aboard. The motor man, with a handle in each hand and one foot planted on as bell-push, pulls and prods simultaneously, and the triple movement sets us gliding off and away. Surely 'tis the poetry of motion! On by an impenetrable evergreen screen stretched along the face of old Trinity's Botanic Gardens, truly tantalising to prying eyes; but amongst the dense leafage of Evergreen Oaks and luxuriant Hollies, the latter still having quite a Christmasy tint with a profusion of berries, we note two fine specimens of the yellow fruited variety, which are charming. Wonder what "F. W. B." is doing? Oh, we know, for it is the time when Daffadowndillies do blow, and our mental X rays detect him pacing the long border, revelling in a wealth of high colours, bicolors, maximuses, and others of that ilk.

On—on the smooth tram track, no shaking our bones over the stones of this, the rocky road to Dublin, till the grand panorama of "Sweet Dublin Bay" breaks into view. Opposite is the low-lying shore of Clontarf, which the Danes found so handy for beaching their long-waisted, high-prowed craft, and where they were defeated in the great battle fought on Good Friday A.D. 1014; but "The waves that brought them o'er, still roll in the bay, and throw their spray, as they break along the shore." It is a glorious view this gusty morning. Half a gale last night has worked old Neptune up to a frolicsome pitch—pitch and toss for a large steamer seen beating up 'gainst wind and tide. Comforting thoughts from the top of a tram. We have passed through several suburban villages, hamlets, or what not, all bearing distinctive or historic names, but they are in touch with each other through to the parent city, after leaving which the *bona-fide* traveller feels rather at sea on the subject, for when one thinks they are in Booterstown Mr. Cityman at our elbow says it is Blackrock, and the later suddenly resolves itself into Kingstown, which there is no mistaking, with its boldly projecting harbour visible for a long distance, and up to this point we may relevantly call all Dublin-by-the-Sea.

Booterstown must be particularised, for here spare time permits of a call at St. Helens, Lord Gough's charming marine residence, a somewhat plain unpretentious mansion, terraced on the sea front with a bijou Italian garden. This is, indeed, the feature of St. Helens, and perfect from all points of view. Between it and the sea there is a stretch of greensward to the boundary wall, over which that polar erection on the electric motor cars is seen gliding past, while the Dublin, Wicklow, and Wexford Railway runs immediately beyond and parallel with the highway. Yet these tracts of civilisation are but little in evidence, and from the terrace garden looking down, and over the third of a mile between us and the briny, all is absorbed in the satisfying seascape. This snug little demense of 120 acres is well timbered and undulating in character. A noble Beech near the north front of the mansion girths I do not know how many feet, but its waist is only in proportion to its far-reaching, well-balanced head, for it is one of those picturesque specimens which delighteth not the timber merchant's eye.

Among the many fine trees which adorn the demesne is a remarkable Evergreen Oak; it is, in fact, a giant of the tribe, and I am told that the late John Lamont of Edinburgh accorded to it as liberal a meed of praise from his more extended arboreal experience. The position of St. Helens is particularly favourable to the well-being of many so-called hardy trees and shrubs, which

so often planted in hope are scotched if not killed by abnormal severity further inland. Mr. Cumming, the head gardener, and manager of all he surveys to boot, has advantageously introduced some nice Coniferae about the grounds. Amongst flowering shrubs a group of *Staphylea colchica* has made vigorous growth. Our guide is great at Carnations, and holds a special trophy for good and all, having won it out last year in Dublin. As a "Mummer" he has done his duty in the years that have fled, but it is not a good time to be talking of Chrysanthemums now, and here in the very stronghold of Irish "Mum" growers it may not be expedient, but the glory of the garden this day is a house of Cinerarias, all the colours of the rainbow, and more besides, if there are any. These are shapely plants bearing huge blooms of surpassing beauty.

With the exception of a fine and well-placed conservatory attached to the east wing of the mansion the houses are small but useful, compact, clean, and all is done decently and in order. The garden, too, is comparatively small and of quaint formation, yet one feels in looking at the old brick walls that it is one with a history, probably contemporaneous with the adjoining demesne of Lord Pembroke, Mount Merrion, which good Queen Bess honoured with a visit. Well cared Pear trees cover the walls, promising well so far as bloom is concerned, and a small but choice collection of hardy plants adorn the borders. *Myrsiphyllum reticulatum* is a pretty evergreen climber, hardy here, and appreciated for furnishing long sprays of its elegantly marbled foliage for decorating. A batch of *Spiraea astilboides* in pots endorses the opinion previously formed that this is a charming plant thus grown, its slightly bronzed characteristic foliage being not the least of its attractions.

Souvenirs of the illustrious Field Marshal Viscount Gough are to be seen as we ramble round, and one can well understand how, after his long distinguished career initiated under Wellington at Talavera, and concluding with decisive victories gained during the Sikh rebellion, he loved to rest here upon his laurels when not spending his leisure at Loughcutra Castle, the family seat in the West of Ireland. Shortly St. Helens will change owners—pass into other hands—and Mr. Cumming will know it no more. Rather regretfully our gardening friend speaks of the attachment ten years has engrafted. It is a right and proper feeling, easy to understand, as we take a last look from the terrace ere leaving. Happily another door, and opening into a wider field, has presented itself, to which Mr. Cumming will shortly migrate, and which we trust will eventually afford to him the pleasant reflections this has done.

A short cut across the greensward previously mentioned brings us again to that triumph of modern locomotion—the electric tram. One is passing, and the motor man cuts off the current for a pick-up. Some two miles out at sea, immediately opposite, the waves curl over the battered hull of that wretched vessel the "Palme," which, driven in during a gale, left Kingstown, mourning for its gallant lifeboat's crew, at Christmas, fifteen months ago, and all but caused a lesser disaster on at least two occasions since. With a last look one wishes that the waves, "which roll in the bay as they rolled that day," would finish their work of destruction by removing the relics of that mournful episode in the history of Dublin-by-the-Sea.—K

EARLY CINERARIAS.

I WAS pleased to read Mr. Molyneux's remarks about Cinerarias (on page 276), but cannot agree with his idea that behind a north wall is the best place for growing the plants for the first four months of their growth. It is a vague idea of gardeners of the old school, but as a matter of fact such places are mostly cold and too dark, and I prefer to put the young plants in cold pits or frames facing the north, and shading them with light material during strong sunshine.

I have eighty plants of Cinerarias, including six *C. cruenta* and the same number of *C. multiflora*, which Mr. Lynch, Cambridge Botanic Gardens, kindly sent me. I sowed the seed the first week in July, and, what may interest some young gardeners, they have been grown from the seedling stage in soil that contained no fibre, and I shall be able to bloom my plants without any insecticide ever being near them. I have fourteen specimen plants mostly in 9-inch pots, grown without stopping, that, when in full bloom, which will be in a fortnight's time, will measure 2 feet 6 inches across the head, with leaves more than a foot in width.

It has often been said the Cineraria is an easy plant to grow, but young gardeners should not make too sure of this, or they may find that even the Cineraria will not look so well as it should do. I once heard a Welsh gardener tell his employer that any labourer can grow a Chrysanthemum, and so I think they could grow a Cineraria in some sort of way, but it would certainly be a very poor way.—THOMAS WEAGER.

REMINISCENCES AND REFLECTIONS.

MR. GEORGE LEE, in his interesting letter on page 291, last week, brings to light a circumstance that could have been known to few—namely, of Dr. Hogg giving £90 for a Tulip bulb. It may be assumed that this cannot be said of any person now living. The highest priced rectified Tulip in Messrs. Barr & Sons' list is Goldfinder (bizarre), 21s., and there is only one breeder equally priced (Sam Barlow), while selections of florists' Tulips can be had at "any price you like," between 7s. 6d. and 30s. a dozen. Thus does the old order of things pass away, giving place to the new.

Mr. Lee, in the last paragraph of his letter, makes mention of a former Duke of Bedford and Dr. Hogg, and may be interested to know that the Doctor became acquainted with the "botanist Duke," and visited him at Woburn. It may be said also that he had a great desire to accept invitations to visit Woburn again, to see the extensive new fruit farm, which is maintained by the present Duke for the purpose of public instruction, and where elaborate experiments on scientific lines—devised by the Director, Mr. Spencer Pickering, F.R.S.—are carried out by one of the Doctor's pupils, Mr. Lewis Castle. Although everything that kindly thought could suggest would have been done to relieve the veteran of fatigue, he never felt equal to the undertaking, and was in fact dissuaded from the venture by his medical attendant.

The letter of the octogenarian (Mr. Lee), it may be noted, reveals a mistake that appeared in the biographical notes on page 232, March 18th, and which has also been pointed out by Mr. H. Balderson—namely, that the Doctor was a spectator of Her Majesty's coronation in 1837. It has become rather common to regard that as the year of coronation; it was the year of the Queen's accession, the coronation following in 1838.

It is also somewhat doubtful if the Doctor's journey from Scotland in 1836 was by coach, as was stated. It is thought by some that he came by sea on that occasion, and by coach subsequently (as he well might). His sea voyage occupied five days—the time of an "American run" now. His craft was a sailing boat. There was not the same distinction in those days between passengers and cargo as exists now. The "boat" was no watertight, and it was little short of a miracle that it was not submerged in "Boston Deep." We should be surprised if during the time of danger there were a cooler person on board than the then young passenger whose life's voyage is ended. Dr. Hogg was seldom visibly alarmed, and never wildly excited over anything; but though calm in demeanour was persistent in any object he desired to attain, and his painstaking in the question of synonyms, mentioned by Mr. Lee, will be fully understood by those who enjoyed his acquaintance, while over the "skeletonising" of the snake he would begrudge no time in having a "perfect" specimen.

His innate patience and perseverance was displayed in a striking manner in a very common occupation—the opening of string-tied parcels. The writer has observed him open hundreds (containing fruit) but never saw him cut a string. "Let me cut it, Doctor," was more than once requested when he was struggling with a knot. "No thank you," he would reply; "knots were made to be untied, and I am not often beaten with them." But though he would expect no one to aid in opening the boxes he was always ready to be assisted in naming their contents. His zest, however, for naming fruit gradually waned, and eventually he abandoned what had evidently become an irksome task, in part no doubt through the consciousness of failing memory.

In journalism it may be said of the Doctor and his distinguished co-partner, Mr. Johnson, that they belonged to the "old school." Such a thing as making a rush to be first with a report appeared with them to be an unknown quantity, though they appreciated activity in others. An incident in reporting afforded evidence of this. Several years ago the Doctor was at a great show in Edinburgh, where he also had a staff reporter. The judging commenced at six o'clock in the morning (Wednesday). The reporter followed the judges closely, and with nimble fingers jotted down the awards and his impressions. Two hours later the Doctor found him busy as the proverbial bee. "Ah! Mr. Scribe, a great show this, plenty for us both. What part shall I do?" He received a reply that for the moment staggered him. "I think you had better go to the post office, sir, and secure a wire!" For a moment he stood mute, then replied, "Did you say go—to the—post office, and secure—a what?" "Yes, secure a wire for half-past nine; it will not be my fault if a report of the show is not in to-morrow's Journal." "Oh! by George, do you mean it can be done?" "Done; yes, if you don't mind paying. I'm off to the hotel, and the report will be ready at 9.25." The reply came firmly enough this time. "Yes, I see it all now; and I'm off to the post office." Perhaps if ever the Doctor bustled it was then. It was a new mission. He was soon at the hotel, watching progress with a curious kind of anxiety. "There, it's done, Doctor, three minutes before time—it's always well to be a little before time, you know." "Yes, it is; I'm afraid I am getting behind it." Gathering his sheets to go, the scribe was stopped. "No, no. I will do the rest; you get your breakfast, and a good one; then take a week where you like, and charge all to the office." The report appeared as intended, the first of its kind, in the *Journal of Horticulture*.

Returning after his "week," and entering Mr. Johnson's room, the grand old man (for such he was) rose from his chair, and after a hearty

handshake with a "Glad to see you here again," went on in his firm, sonorous voice, "All I have to say is, I've carried this for fifty years and never earned it; you have; take it, and good luck to you," as he handed over his gold pencil. There was no mention of the report, nor was there a few days later when the Doctor wrote the monthly cheque with the remark, "It will be like that" (with a slight emphasis on the "that"). "in the future, and I hope we shall work together for many years." Such is the kind of appreciation that encourages, and in return no man worthy of the name would fail to give his best and devoted services.

What changes have occurred since that Edinburgh Show, and what lessons they teach of the uncertainties of and in life. Two great Editors gone, four printers' overseers, and many a bright penman whose loss is deeply mourned. Yet at least a quartet of old literary workers remain, examples of prudent lives, with the resultant still bright intellects and keen perceptions—namely, "D., Deal," and Messrs. Fenn, Abbey, and Pownall. These are the "Journal's" representatives of rich ripe autumn. Such veterans like to look back on the past, and reflect on their summers of vigorous manhood and springs of joy and hope; and they also like to see the summerhood of others displayed in full strength, as well as the springtide of probationers, like fresh young buds, represented in these pages.

These young men should know, and never forget, that if they wish to advance in life they must do so by intellectual culture, with the best of work, in sight and out of it, that is attainable by diligent practice, honest, honourable labour, unswerving loyalty, and patient endurance. They must work to win, not trusting for one moment to others to push them on, for pushing, as they will find on reflection and many examples, is usually followed by stumbling and a fall. Let a man, be he a gardener or anything else, attain by his own efforts competency, with prudence and a controlling capacity above his fellows, and his services will be sought for. There never was a time when men of the greatest skill, combined with tact and high conduct in their respective callings, were in such demand as now; not themselves, but others being the judges. As all know, accidents and misfortunes may befall the most able and worthy, but the duty still remains that each should strive by all the means available to excel his fellows in all that goes to build up the genuine man—to be respected, and the most accomplished gardener. These are the men who more than all others stand to win in the battle of life.—THE SCRIBE.

VIOLETS IN FRAMES.

Now that the time is at hand for commencing operations to insure the successful cultivation of this the sweetest of winter and spring-flowering plants the subject is worth consideration, as the pits and frames are now being cleared for other purposes, and frame cultivation of Violets is at an end for this season. But we must begin our task again if we wish to have a healthy stock of plants and abundance of large sweet-scented flowers during next winter.

The system we pursue is planting single crowns so as to cover the entire surface of the bed, and we are so satisfied with the results as to totally discard the clump system, except for pots. Our mode of procedure is to plant small side shoots or sets 6 inches apart in a nursery bed, and when they have made good strong crowns they are planted out about the middle of May in a rich prepared border 15 inches apart. During the summer they require looking over once a fortnight to remove suckers and surplus runners, leaving four or five of the strongest to each centre crown, and when they have formed a knot to stop it. The result will be the nourishment will form a good plump crown, instead of expending itself in useless suckers and runners. Small pegs should be used to fasten them down, to prevent the wind blowing them about until they have taken root.

Towards the end of September the pits or frames must be prepared. They should have a south aspect, and if there are pits that can be spared adjoining a house heated with hot water so much the better, as small perforated air bricks can be let into the dividing wall, and in frosty weather the advantage will be great, as ventilation can be afforded without admitting the cold air. The bottom of the pit can be covered with a layer of brushwood and leaves made firm, on the top of which place about 12-inch depth of good loam to within 6 inches of the glass. The plants can then be carefully lifted and placed out, pegging the radiating crowns so as to cover the entire surface of the bed, as there is no fear of the foliage overcrowding, each crown having only its proper supply of leaves, all useless wires being removed as soon as they appear.

Where there are no pits to spare such as I have described we must have recourse to the common wooden frame, which, when elevated on a layer of faggots, filled with loam, and planted like the others, a lining of fermenting material can be applied to the base, and the heat will rise into the frame, which of course must be well ventilated. I prefer a rather strong loam as in this the plants produce flowers of a rich deep colour, whereas the absence of moisture in a sandy soil causes the plants to become infested with red spider, which soon destroys the foliage and greatly weakens the constitution of the plants. If possible sets for planting should be procured from plants that have been liberally treated the previous year, for, like the Strawberry, they are apt to degenerate rapidly if left to themselves.

The foregoing remarks may be of use to those who have to produce a large supply of this favourite flower during the depth of winter, and to those who have not tried single crowns I would advise a fair trial

during the coming season; and if properly carried out they will not revert again to the clump and row mode of planting, as they will find that in the same space finer flowers and larger quantity can be grown on the "single crown system."—GROWER.

THE INTRODUCTION OF VEGETABLES.

HUME, the historian, tells us that it was not till the middle of the sixteenth century, during the reign of Henry VIII., that any salads, Carrots, Turnips, or other edible roots were grown in England. The small quantities of these vegetables that were previously used were imported from Holland and Flanders. Queen Catherine, when she wanted a salad, was obliged to dispatch a messenger abroad on purpose to procure it. Although the Potato was imported into Spain early in the sixteenth century, and travelled thence to Italy, it did not arrive in England until 1586, on the return of Sir Walter Raleigh from Virginia, who is believed to have been the first to have brought it here. Sir Walter did our fellow countrymen the Irish a good turn, for he personally distributed a large number of tubers throughout that country, and it was not until after his death that they found their way to London from Dublin. It is a noteworthy circumstance that Linnæus conceived a violent prejudice against the Potato; in fact, he preferred the Jerusalem Artichoke, alleging that the former belonged to a poisonous genus, the Solanum, and was injurious. We all know now that it is very wholesome when well boiled, and quite indispensable in the household.

Peas, perhaps, take the palm as being the most delicate and agreeable of vegetables, wonderful improvement having taken place in their development and flavour, more especially in recent years, brought about by the skill of our leading seedsmen. They are even to be had fresh in the markets during nearly half the year. Attempts have long been made to preserve Peas for winter use, and this has been effected with a certain measure of success, but we agree in the main with Appert, a horticultural writer of a hundred years ago, who wrote that "They looked pretty enough, but flavour they had none at all." They are much used throughout the winter in this state in the hotels and restaurants. In Queen Elizabeth's time they were also imported from Holland, which made Fuller say sarcastically that they were "Fit dainties for ladies—they came so far and cost so dear."

Beans are the first vegetable that became popular and generally used, being largely eaten by the ancients. Pythagoras, the old Greek philosopher, enjoined his followers to abstain from Beans, because it is thought he intended to restrain them from meddling in politics, for it is well known that votes were formerly given by Beans, placing them in urns, the forerunner of our present system of voting by ballot. Haricot Beans, boiled and eaten with oil and vinegar, are generally used by the French daily, forming a portion of the ordinary diet. They are wholesome and nutritious, but are not in such favour with us.

Artichokes (*Cynara scolymus*) are a pleasant vegetable, by no means generally eaten. Of old the juice enjoyed a reputation as being a cure for rheumatism; this virtue, however, is not, so far as we know, claimed for it at the present day. Jerusalem Artichokes owe their name to two odd reasons. They are the tubers of *Helianthus tuberosus*, a species of Sunflower. Jerusalem is a corruption of *Girasole*, its name in Italy. Artichoke is due to its strong resemblance in taste to the real Artichoke. Salads are very popular, but are not highly digestible. A distinction, however, exists, Cucumbers being considered the most indigestible, and Lettuce the most digestible. Lettuce, it would seem, owes its innocence to its containing a small quantity of narcotic matter. Nothing, perhaps, more shows the popularity of salads than that an eminent man like Evelyn, of diary fame, should have written a book on them. He enumerates seventy-two herbs fit to enter into their composition in his "Acetaria: a Discourse of Sallets," published in 1699.—WM. NORMAN BROWN.

NOTES ON DAHLIAS.

COMPARATIVELY few flowers enjoy so wide a popularity as the Dahlia, and the reasons are obvious. In the first place it is essentially an accommodating plant, and is perfectly at home in the gardens of all sorts and conditions of men. Perhaps, excluding the queenly Rose, no flower finds such favour with the working thousands to whom floriculture is a useful and elevating hobby. To such men the merits of the blooms grown in tiny gardens and allotments form the subject of many an animated conversation in the depths of the mine, by the forge, and amid the never-ceasing rattle of the spinning frame. Yes, to appreciate fully the value placed upon the Dahlia one must be in close touch with this important section of the population. Then we have the enthusiastic experts who display their flowers and crowd round the tables at the Crystal Palace, Royal Aquarium, and other important shows. To them Dahlia growing and raising is a fine art, and one, too, wrought with interest—yet another testimony of the sway which the flower holds. Indeed, one might go on at length enumerating different types of horticulturalists to whom the cultivation of the popular flower is a pet theme.

I said the plant was accommodating, and so it is in more ways than one. Where is there another in which we get so charming a variety, such a disparity in type? Look at the large show kinds—perhaps not favourites with everyone, but containing such a substance of bloom, such a regularity of outline, and depth of colour! Then the "fancy" kinds, with their lesser forms and strange mixture of tints! They, too, have their admirers, and during recent years have come rapidly to the

front. Perhaps, however, for popularity the palm must be given to the Cactus, as its pleasing form and striking colours, coupled with its usefulness for decorative purposes, has placed it in the forefront of this extensive family. More simple, more unobtrusive, and with a shyness that courts not publicity, are the words that perhaps best describe the Pompons; yet they have a beauty quite distinct, and peculiarly their own. Last, but by no means least, there are the singles, though in this section opinions divide, and the beauty of single Dahlias does not appeal to some who admire the double and more substantial forms. To be seen at their best they should be planted *en masse* in a garden where they are in character with the natural surroundings. Those who have seen the large masses of single white Dahlias contrasting with the bright scarlet beds of *Formosa* (one of the most floriferous varieties) as grown in the naturally formed gardens at Alton Towers will, I think, agree with me that as a beautifier of the flower garden we have few superiors to the single Dahlia.

Ever looking ahead, thoughts are already centred on the furnishing of the flower beds, and propagation is in full swing. Many a grower, both large and small, has examined with anxiety his store of tubers during the past few weeks. Let us hope that in all cases they have been found sound and in good condition, for on careful storing depends the success of the following season. To be dry and frost-proof are the two indispensables, and these provided no fears need be entertained. Shrivelled tubers when taken out of their winter quarters denote too high a temperature, and too much moisture causes wholesale decay. A dry disused cellar where frost could not penetrate was the best place I ever had for storing Dahlia tubers, and there, too, *Gladiolus* corms were habitually wintered without a single loss. Care should always be taken that each variety is carefully labelled and kept separate, otherwise confusion is sure to follow. Some varieties, it is true, can be detected by the foliage, but in others it is so similar that this is impossible, and what looks worse than when planting a bed of one kind to find at flowering time that there are several others mixed with it?

Old tubers for providing cuttings are placed closely together on a slight hotbed with a little leaf mould sprinkled over them. Soon they push an abundance of stout shoots, and these taken off when about 3 inches long with a heel of the old tuber attached root rapidly. The most expeditious way of raising large quantities of good strong plants is to root them in a bed over gentle heat, and then transfer to 4 or 5-inch pots. If grown in the cool and close to the light, being gradually hardened before standing outside, the plants will be in fine condition at bedding time. Spring-rooted Dahlia plants are often grown in thumb pots, particularly where lack of space is a consideration. Arguments may be urged against the method, for long before the plants can be removed to the open ground the pots are one mass of roots, and the growth in consequence is matured and stunted. Several weeks elapse after planting before root action recommences, and those weeks are practically lost—hence the advisability of growing the plants without a check.

But what about soil? perhaps some novice is impatiently muttering. Well, the Dahlia loves a fertile medium, but an over-liberal supply of strong manure is a mistake, or the growth is so rank and robust, the consequence being that few flowers are produced. A little guano or night soil may be used, instead of rich farmyard manure, with good results. Some varieties, however, grow much stronger than others, therefore it is difficult to lay down any hard and fast rules on this point, and judgment must be used by the cultivator. One of the blocks over which many Dahlia growers stumble is that of planting them too closely together. The result is a thicket of growth, and the real beauty of the plants is almost undiscernible. It is better to err on the other side when placing out the plants. Neat stakes, sawn out and painted, are perhaps the best to use for supporting the plants, though thick bamboo canes are also largely used. Once I remember a young Larch plantation caught fire during the dry days of spring; the charred poles about 4 feet high, left standing after the conflagration, formed a stock of Dahlia stakes which lasted for years, the charred bark seeming to be a means of preservation.

Dahlia growers have many enemies, and where rabbits abound none more deadly than these. When the plants are young and the leaves tender the furry creatures have a decided liking for them, and unless adequately fenced out will devour the foliage and stems wholesale. Later on there are earwigs, for the capture of which there is no better plan than the old-fashioned one of fixing inverted flower pots on stakes, looking them over continually, and destroying the troublesome pests.

I do not propose wearying the reader with long lists of names, as a selection of the best varieties and most recent introductions may be obtained from the perusal of any florist's catalogue. One word, however, may be said; do not be misled by appearances, particularly with the Cactus sorts. Many of them look beautiful on the exhibition table, but in the garden their flowers are produced on such short footstalks that they are completely hidden by the foliage, and the ardent amateur, after paying a good price for the plants, is disappointed. Moral—Learn something of the habit of the plant before purchasing. Single Dahlias are often raised from seeds, but it is better to get a collection of such distinct kinds as *Formosa*, *Negresse*, *Duchess of Westminster*, *Miss Roberts*, and *Paragon* and propagate year by year.

Something, too, might be added about exhibiting, treatment of the tubers after frost has asserted its power, and many other operations, but these can be left till later. The year is yet young, and it is only propagating time, but to those enthusiastic in the culture of the ever-popular Dahlia the foregoing reminders may prove useful.—G. H. II.



"JOURNAL OF HORTICULTURE" EDITORIAL DEPARTMENT.—

From the present date, and until further notice, it is particularly requested that all letters and parcels intended for the Editor, also all communications for insertion in the *Journal of Horticulture*, be addressed to 8, Rose Hill Road, Wandsworth, London, S.W. N.B.—Business letters and advertisements must be addressed to the City Office.

— WEATHER IN LONDON.—While we have had several varieties of weather during the past week, there is nothing equal to that of the "Westminster Gazette" paragraph which will be found below. Sunday was a glorious day, warm and bright; Monday was overcast, with occasional showers; while Tuesday was practically the same, with the addition of a few gleams of sunshine. On Wednesday it was wet in the early morning, but fine later.

— WEATHER IN THE NORTH.—A change for the better has taken place in the weather of the past week. On only one morning was there frost, and with westerly winds and occasional showers there has been more of the feeling of spring. Tuesday morning was showery, with S.E. wind, and thermometer at 46°.—B. D., *S. Perthshire*.

— JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY.—The latest issue of this publication has just come to hand, and contains much sound matter of value to horticulturists. Particularly interesting are the essays on New Roses, by Rev. J. H. Pemberton; Fern Generation, by Mr. C. T. Drury; Forcing Lily of the Valley, by Mr. T. Jan-
noch; Gladioli, by Mr. J. Barrell; Hardy Summer Flowers, by Mr. E. Burrell; Chrysanthemums, by Mr. W. H. Lees; Seed Growing, by Mr. R. Fife; and Floral Decorations, by the Rev. G. Henslow, M.A.

— WOLVERHAMPTON AND DISTRICT HORTICULTURAL CLUB.—Under the auspices of this flourishing Society Mr. John Pope, F.R.H.S., King's Norton, was recently invited to deliver a lecture on the Narcissi, Mr. Simpson in the chair. The subject of the paper was divided into four parts—viz., "The probable future development of the bulb," "Its cultivation," "Its value as a forcing plant for decorative purposes," "Its value from a commercial grower's point of view." The essayist's remarks were listened to with the deepest interest. In the discussion which followed several questions were satisfactorily replied to by the essayist. The meeting was rendered further interesting by a display of several bunches of the old Noisette Rose Fortune's Yellow, which resembled by the gaslight miniature Pæonies, so beautiful were they. The grower, Mr. Bradley, gardener to Miss Perry, Wergs Park, stated that the plant was about ten years old, and is growing in a cool greenhouse; also that he had during the last few weeks cut hundreds of the blooms, whilst in the same house a large plant of Maréchal Niel does not flourish, though growing under similar conditions.

— WAKEFIELD PAXTON SOCIETY.—The speaker at the meeting of the Paxton Society on Saturday evening, April 3rd, was Mr. R. T. Pitts, Stanley, who gave an essay entitled "Gardening in Relation to Amateurs." Mr. Tunnicliffe took the chair, and Mr. Brown of Outwood was Vice-Chairman. Addressing himself to his subject, Mr. Pitts said he desired to indicate how an amateur gardener might make the best use of his bit of ground, not, however, as a financial undertaking. First, the ground must be drained some 8 inches beneath the surface. Dig deep for cultivation in autumn, and put in the manure. Make a cordon fence of Gooseberry or other fruiting shrubs, which should be kept well cut. French Beans might be planted, but vegetables should not be too thick on the ground, and also Brussels Sprouts, Savoy, and Cauliflowers. An amateur should also have a cold frame if he wishes to get the best results. Broccoli should not be gone in for heavily, otherwise the weight of vegetables would be ready simultaneously. With only a small garden an amateur should not grow Potatoes, which could be bought very cheaply. Mustard and Cress might be sown often and cut quickly. Lettuce requires a little more time. Unsightly places might be covered with Rose bushes, Ivy, Artichokes, or a Virginia Creeper. Or a bank might be made and covered with hardy Ferns. Under no circumstances should a garden be crowded. The usual votes of thanks were accorded.

— GARDENING APPOINTMENT.—Mr. R. W. Smith, for the past seven years foreman at Raby Castle Gardens, co. Durham, has been appointed head gardener to W. Tunstill, Esq., Reedyford, Nelson, Lancashire.

— GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Mr. Arthur W. Sutton of Messrs. Sutton & Sons, Reading, has given a donation of £100 to the "Victorian Era Fund" which is being raised by this Institution to commemorate the Diamond Jubilee.

— GARDENERS' ROYAL BENEVOLENT INSTITUTION—Worcester and District Branch.—We are informed that by the kind permission of the Right Hon. Earl Beauchamp the beautiful Gardens, Maze, and Rockery at Madresfield Court will be open to the public on Thursday, April 22nd, 1897. Admission:—Two till five, 1s.; five till seven, 6d. The proceeds will be given to the above excellent Institution. The spring flowers, with which the Gardens abound, will be in perfection.

— MR. WILLIAM COOMBER.—We regret to learn that owing to the death of the late Lord Lilford, Mr. Coomber will shortly have to leave Lilford Hall, the present lord taking his own gardener there with him. This is very unfortunate for Mr. Coomber, who was a victim of the pecuniary misfortunes of the Royal Botanic Society. A worthy man and an excellent gardener, all who know Mr. Coomber will be glad to hear of his obtaining an appointment in private or public service.

— PRESENTATION TO MR. A. GRAHAM.—An interesting function took place at the Southampton Hotel, Surbiton Station, on Wednesday evening, when Mr. A. Graham, the late Superintendent of the Royal Park and Gardens, Hampton Court, was presented by a number of his friends with a pair of silver-plated entrée dishes and a purse of money, together with an illuminated address, on the occasion of his retirement from the important position he has held for a period extending over twenty years. Advantage was taken of the occasion to present to Mrs. Graham also a handsome gold watch, the gift of an anonymous donor.

— THE LATE MR. W. G. HEAD.—Very sorrowfully, but without surprise, did I read in this week's Journal of the death of Mr. Head. Having no personal acquaintance with him but as a co-judge—though not in his department—at Shrewsbury, I am not able to speak of him as others can; but last August, after the judging was over, and we sat together in the Secretaries' tent, he told me of his peculiar disease and what he suffered, of the proposed operation, and its risk and doubtfulness. He had a very quaint way of expressing himself, a quick perception of humour in either a speech or a situation, and a ready and witty repartee in a give-and-take conversational chat with brother gardeners. He had a forceful nature, which had enabled him to overcome immense difficulties under the latter-day's severely economical management of the Crystal Palace Company. He will be much missed.—N. H. P.

— SHROPSHIRE SPRING SHOW.—The annual spring show of the Shropshire Horticultural Society, which took place in the Music Hall, Shrewsbury, on the 7th inst., resulted in another of those grand successes which have marked the exhibitions of the Society of late years. Of the beauty of the display on these occasions much might be—indeed, has been—written; but no words, however eloquently expressed, could convey at all an adequate idea of the grandeur of the scene presented by the wealth of flowers and foliage which the Society is instrumental in bringing together; it must be seen to be properly appreciated, and when once this is done it is no mere exaggeration to say that it will not easily be forgotten. These remarks apply with singular appropriateness to Wednesday's show, which in many respects was in advance of any of its predecessors; while from another important point of view—that of attendance—there were not wanting evidences to prove that the exhibition is increasingly popular with the public. The arrangements for the event were admirably carried out by the Hon. Secretaries (Messrs. Adnitt and Naunton), and in order to avoid the crush which has been experienced in past years in the large hall, it was decided to utilise the front room of the building, wherein were staged some half dozen classes in the open section and the whole of the exhibits in the amateur department. This new departure worked most successfully, and the executive are to be congratulated on having brought it about. The display, as we have already said, was a first-class one from a competition point of view, but, as on previous occasions, the general effect was considerably heightened by the displays of the local florists and others. Lack of space precludes our giving a detailed report of the exhibition which so admirably upheld the status of the Society.

— **DAHLIA ANALYSIS.**—I regret to find that in the list of Cactus Dahlias, given on page 288, I have by an unfortunate oversight omitted that lovely variety, *Delicata*. It should stand third on the list, and follow *Lady Penzance*.—E. M., *Berkhamsted*.

— **"LA SEMAINE HORTICOLE."**—Such is the title of a gardening paper, published under the direction of Mons. Lucien Linden, at 11, Rue Belliard, Brussels, which has now reached its eleventh number. The journal is printed on slightly toned paper, with good legible type, while the illustrations are engraved on wood. The list of names comprises some of the best-known writers on horticultural subjects on the Continent, with Mr. James O'Brien from this side of the stream.

— **ASPARAGUS AND EARLY RADISHES.**—A correspondent informs us the Asparagus was cut in the Vale of Evesham on March 26th (the same day as by Mr. Orchard in the Isle of Wight), and the first Radishes drawn on the same date. Evesham is famous for early Radishes, among other crops, and it would be interesting if someone acquainted with the subject could describe the methods of growing and marketing, also indicate the value of the crops in that fertile and well cultivated district.

— **READING GARDENERS' ASSOCIATION.**—The closing meeting of the spring session of the Reading Gardeners' Association was held on Monday evening last, when Mr. C. B. Stevens presided over a large attendance of members. The paper for the evening was "Zonal Pelargoniums" by Mr. H. Shoesmith, Claremont Nursery, Woking. The paper was of an exceedingly practical character, being full of plain cultural notes, and was followed by the members with the closest attention. A hearty vote of thanks was accorded.

— **CARTERS' PRACTICAL GARDENER.**—We do not know how many editions of the popular work have been exhausted, as this does not seem to be stated in the last and the best, of which a copy is before us. Externally it is the most attractive of all, and internally the most useful, because, in addition to the varied and valuable matter in its 200 pages, there is the addendum of an excellent index. If in a multitude of councillors of experience is to be found wisdom, surely wisdom on useful and ornamental gardening is to be found here, and all, as before, for 1s. It is wonderfully cheap.

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of the Society, to be held at the Institution of Civil Engineers, Great George Street, Westminster, on Wednesday, the 21st inst., at 7.30 P.M., the following papers will be read:—"The Relation Between Cold Periods and Anticyclonic Conditions of Weather in England During Winter," by W. H. Dines, B.A., F.R.Met.Soc.; "Sunspot Influence on the Weather of Western Europe," by A. B. MacDowall, M.A., F.R.Met.Soc.; "The Use of Kites to Obtain Meteorological Records in the Upper Air at Blue Hill Observatory, Mass., U.S.A.," by A. Lawrence Rotch, B.Sc., F.R.Met.Soc.

— **SHIRLEY GARDENERS' ASSOCIATION.**—The first meeting of the fourth year of the above Society was held at the Parish Room, Shirley, Southampton, on Wednesday the 7th inst., the President, Mr. W. F. G. Spranger in the chair, there being a fair attendance of the members. The Society had been most fortunate in securing the services of the Rev. G. H. Engleheart, M.A., Appleshaw, Andover, who is a well known enthusiast in the culture of the Narcissi, and whose lecture on their cultivation was listened to with the utmost attention, and was much applauded. First he showed how the whole Daffodil family was divided into classes, the time for planting, the soil and preparation most suitable to their needs. He urged his audience to grow them from seed, speaking of the pleasure to be derived from watching the unfolding of the unknown flowers day by day, in the expectation of something new or interesting, and show how the classes had been made to merge one into the other by cross fertilisation and seed selection, resulting in some grand hybrid flowers, a few of which he exhibited at the meeting, and four of these were awarded extra special certificates. A brief discussion ensued, and the lecturer replied to several questions, one bearing on the fertilisation of the flowers artificially, drew forth a useful lesson on the subject. A hearty vote of thanks was accorded to the lecturer, and also for his grand collection of seedling flowers exhibited to illustrate the lecture. Mr. B. Ladhams sent about thirty varieties; Messrs. Barr and Sons, Long Ditton, sent thirty-five varieties of Narcissi; and there was also a good exhibit of hardy flowering shrubs and American plants sent by Mr. W. H. Rogers, Red Lodge Nursery, for which the exhibitors were accorded a hearty vote of thanks. A vote of thanks to the President concluded the meeting.

— **NEW ZEALAND SEEDS.**—We are informed by Messrs. W. G. Innes & Co. that Her Majesty has been graciously pleased to accept from Messrs Nimmo & Blair, of Dunedin, a collection of New Zealand native tree, shrub, and plant seeds.

— **SHEFFIELD BOTANIC GARDENS.**—It is said that a section of the public of Sheffield is determined to celebrate the Queen's record reign by purchasing the Botanic Gardens and handing them over to the City authorities for the use of the public. Towards this object half of the shares in the Gardens have been offered and £1500 subscribed. The Gardens have been conducted at a loss, and there has been a fear lest they should come into the hands of the speculative builder.

— **TORQUAY GARDENERS' ASSOCIATION.**—A few days ago the members of this excellent association held their annual general meeting to hear the reading of the report and the balance-sheet. Both of these were very satisfactory indeed, and show how admirably the Society is managed by the various officers. Mr. F. Smale, the indefatigable Hon. Secretary, was re-elected, and will, we are sure, give the same close, keen attention to the affairs of the Society in the future as he has done in the past. The summer excursion, held in July, will be to Kingsbridge. The Secretary's address is Isaline, Avenue Road, Torquay.

— **ANTI-BLIGHT.**—I see anti-blight is inquired about on page 283. I enclose you the two last recommendations I have received praiseworthy of its behaviour. You all left me so severely alone last year that you had no chance of witnessing its continued usefulness with me. One compensation, however, we had your notes from Scotland, but he of King Street never gave to me of his whereabouts. I learn he is again off to Sicily, or somewhere, and will not return till the end of the year.—ROBT. FENN. [The testimony of the two practical gardeners is conclusive. With an atmosphere favourable for Tomatoes, *plus* timely "dustings," we suspect the fungus cannot take possession of them.]

— **BIRMINGHAM GARDENERS' ASSOCIATION.**—The last meeting on the spring syllabus took place on Monday, April 12th, when Mr. Geo. Bunyard, the Royal Nurseries, Maidstone, with Mr. W. B. Latham in the chair, gave a most instructive and comprehensive verbal lecture, entitled "Common Mistakes in Fruit Culture," before an appreciative attendance of the members. As indicated by the title, Mr. Bunyard's remarks were confined principally to the too common mistakes made in the planting and pruning, as well as to the selection of unsuitable varieties of different kinds of fruit trees, rather than to a description of the proper way to treat fruit trees. In the discussion which followed a few questions were put by one of the members to the lecturer, and were satisfactorily answered. A hearty vote of thanks was accorded to Mr. Bunyard.

— **THE WEATHER LAST MONTH.**—March was changeable with much wind and rain throughout, and was remarkable for a very low reading of the barometer on the 3rd inst. The prevailing direction of the wind was W. on twenty-two days. Total rainfall, 2.41 inches, which fell on nineteen days. This is 0.85 inch above the average for the month. Barometer (corrected and reduced), highest reading 30.143 inches on the 8th at 9 A.M.; lowest, 28.575 inches at 9 A.M. on the 3rd. Thermometers.—Highest in the shade, 61° on the 21st; lowest, 25° on the 30th. Mean of daily maxima, 50.22°; mean of daily minima, 37.39°. Mean temperature of the month, 43.80°; lowest on the grass, 17° on the 30th; highest in the sun, 116° on the 21st. Mean of the earth at 3 feet, 42.16°. Total sunshine, 121 hours. There were five sunless days.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham*.

— **VARIETIES OF WEATHER.**—Many people allow Manchester to occupy the post of honour as regards bad weather, but the "Westminster Gazette" in the subjoined paragraph proves London to be an excellent second. After the experience of Wednesday the 7th inst., no one can resent the opinion once expressed by an American visitor that we have no climate in this country, but only samples. We certainly had a variety of samples exhibited to us. In the early morning it was a November fog. This was succeeded by January rain and early March wind, then a May sun suddenly burst out, but it had no sooner got inside the houses than it was drowned out by a burst of December hail and sleet. To cap it all, the thunder and lightning took the next turn with an August display of fireworks. And then the day finished up in November. These samples, in addition to their variety, visited the different parts of London in streaks, which added much to the interest, for it enabled one to start from one district in May, and arrive at another several months earlier. It is to be hoped that the weather will have exhausted itself before Jubilee week, and that there will be no storage of rain work left to be done during that festive period.



SOPHRONITIS GRANDIFLORA.

A CHARMING little Orchid when well grown; its large bright flowers give it a cheerful appearance, totally distinct from all others that are flowering at this season of the year. It will grow very well on small blocks of wood (fig. 68), but in this position requires more attention in watering than when grown in small shallow pans. It should be suspended from the roof, and if employed freely or alternately with *Odontoglossum Cervantesi* or even the beautiful and distinct *O. Rossi majus*, which also flowers about the same time, the effect is all that can be desired. The *Sophronitis* is an obliging Orchid, for it appears to thrive well either in a warm or a cool house, and I have seen some grand specimens in a stove with brighter flowers than when in a cool house. It delights in a little heat, such as afforded in an intermediate house, while making its growth, but when at rest should have cool house treatment, which insures a vigorous growth the following season. Although its flowers are brighter in heat they do not last quite so long as in a cooler house. To grow this Orchid successfully too much rooting material should not be given it; but the pans should be liberally drained with crocks and charcoal, a little peat fibre and living sphagnum being used for the compost.—GROWER.

THE PELARGONIUM.

IN the following notes I do not propose to deal with the beautiful and ever-popular Zonal, but with those plants that have rough, serrated leaves, which used to be very largely grown by cottagers for window adornment, and possibly are now in some parts of the country, and was commonly known as the Nettle Geranium. It is one of the most beautiful of our greenhouse plants, and a good collection when in full bloom cannot be excelled for brilliancy of display. There is a chasteness in the bushes, blotches, and markings that is always admired. Another recommendation is its hardiness, as it will live and flower in the open air in summer, and can be wintered almost anywhere if frost is excluded. In mild winters some of the strongest varieties would survive in a cold frame if carefully protected with mats. I should not, however, advise this course to be adopted; it would be too risky for valuable plants. It flourishes in a cool atmosphere and sickens in a hot one, while it is easy to propagate and easy to grow. Like everything else it has its enemies. Green fly is extremely partial to it, hence the difficulty of amateurs to keep it clean and free from blight. It is not impossible to grow healthy plants if you only know how, and my object is to give such hints from practical experience which, I trust, may prove serviceable to my brethren of the craft.

The almost innumerable varieties of *Pelargoniums* existing in our greenhouses at the present day owe their origin to hybridising and cross-breeding, having sprung from the comparatively insignificant species indigenous to the Cape of Good Hope. There is probably no family of flowering plants in existence that has so richly rewarded the labours of the hybridist as the *Pelargonium*, or that is used for decorative purposes in such a variety of ways. They can be had in flower throughout almost the whole of the year, and are useful alike for greenhouse, conservatory, hall, window, exhibition, and as cut flowers.

PROPAGATION.

The ease and rapidity with which they may be propagated is another great advantage. *Pelargoniums*, as will be easily understood, come freely from seeds, hence the almost astounding number of varieties in cultivation. If this system be adopted the seeds should be sown in the spring in shallow boxes or pans, well drained, and then filled to within an inch of the rim with finely sifted soil composed of two parts loam and one of thoroughly decomposed leaf soil, making the surface quite smooth. Damp the soil slightly if it is dry, and after allowing the water to drain through sow the seeds thinly and evenly, covering them to a depth of about a quarter of an inch. Place a sheet of glass over the top of the receptacle, but remember to remove it every morning in order to wipe off the moisture that will condense on the inner surface, and be careful to tilt the covering slightly immediately the plantlets push through the soil, increasing the ventilation as the plants attain size.

Put the seed boxes in gentle heat, and when the seedlings appear give sufficient water to keep them growing, but do not make the soil too wet, as *Pelargoniums* are somewhat impatient of moisture. When the seedlings are large enough to handle, prick them off singly into thumb pots, using soil similar to that in which the seeds were sown. Stand them in a house or pit near the glass, in a temperature of 50°, and admit sufficient air to prevent them becoming tall and weak. As the pots are filled with roots move the plants into others, 3 inches in diameter, using the same compost in not quite such a fine state. Encourage growth, but do not pinch the shoots unless the plants are intended for specimens. This is not often the case with seedling plants, the principal object being to get them into flower as soon as possible in

order to ascertain if there are any worthy of retention. All that are inferior to existing varieties should be destroyed. Five or 6-inch pots will be large enough to keep them in till they flower.

There are few plants that can be increased by cuttings more readily than *Pelargoniums*. Every properly matured joint or a bud with a leaf will usually form a plant, but cuttings made from the shoots in a moderately firm condition are more generally employed. Shoots with two or three joints ought to be taken early in spring, and four inserted round the edge of a 4-inch pot filled with two parts loam to one each of leaf mould and sand. Let these be accommodated in a temperature of 50° where they will root freely. They must be neither too close nor receive too much water, as they are liable to damp off under such conditions. When they are well rooted move them into thoroughly drained 4-inch pots, using soil similar to that in which the cuttings were rooted, but with rather less sand.

When growth commences pinch out the points in order to induce them to produce several shoots within 3 or 4 inches of the collar of the plants, and as soon as these are long enough tie them to the rim of the pot. If this is not done whilst they are young there is difficulty in getting them down low enough without considerable danger of breakage. When these shoots have made three joints pinch again to cause them to form more.

COMPOST AND TRAINING.

The final repotting for seedlings, as previously suggested, should be into 6-inch pots, which will be large enough for them to flower in the first year. The compost for this potting should be two parts good fibrous loam, one part each of leaf mould and well-decayed cow manure, with sufficient sand to keep it open. Place neat stakes to all plants requiring support. A little liquid stimulant will be all they require until flowering is finished, after which stand the plants out of doors in a sunny position to ripen the wood, giving no more water than is necessary to keep them from flagging. In about a month the plants will be ready to cut back. Each shoot ought to be shortened to the second eye, the plants placed in a frame or pit, and kept a little close and dry until growth has recommenced.

To induce this syringe every warm afternoon, but do not apply water to the roots until they have well started, or they may quickly suffer. When the shoots are an inch or so in length turn the plants out of their pots, and shake off most of the old ball, trimming the straggling roots a little, and replace the plants in pots two sizes smaller than those which they previously occupied. The compost for this potting should be two parts good fibrous loam, one part leaf mould, with a little decayed manure and silver sand. The potting should be done lightly, while watering must be very carefully looked to.

Keep the plants near the light, and sufficiently far apart to prevent their becoming drawn. As the shoots get long enough secure them down to the rim of the pot. They should be wintered in a good light house, and be placed near the glass, the night temperature being as nearly as possible 45°, with air given on all mild days. Cold currents must be allowed to pass through the plants. No more water than is necessary to keep the soil from getting too dry should be given in the winter. Stop the shoots about the end of October, and as soon as they have made an inch or two of growth move them into their flowering pots. The size of the plants will be a guide as to the size of the pots required. Those in 4-inch pots, with from six to ten shoots, do well in 7-inch pots, and so on in proportion, bearing in mind the vigour of the plants. The compost for this potting should be three parts good loam, one of well decomposed manure, with a 4-inch potful of any well-known artificial manure to each 3 bushels of the compost. The potting must be very firm.

If the compost is not wet it is impossible to pot them too hard, except in weak and short growing varieties, which should be potted rather lightly. As growth advances tie out the shoots, so as to keep them open and exposed to the light. If they are required to flower early they should not be stopped again, but if not desired until June, they may be stopped in February. As the days get longer they should be encouraged to make both root and top growth by closing the house early in the afternoon while the sun is shining upon it; and as soon as the flower buds are formed, assist them by the use of liquid manure once a week. About half an ounce of guano to 2 gallons of water will be strong enough to start with, then increase the guano to 1 oz. to 2 gallons of water.

As the weather gets warmer green fly is almost sure to make its appearance. As soon as it is discovered fumigate the plants, and be very particular to see that the plants are quite free from insects before the first flower buds open. If fumigating has to be resorted to when the plants are in bloom nearly all the open flowers will fall. After the plants have done flowering they may be stood out in the open air, as previously advised, to harden them. When the wood is firm and ripe they can be cut down and treated as already described.

Cuttings can be made from the shoots taken off at this time, and if sufficiently early, say the beginning of August, they will root freely in the open air in a bed made up of sand and loam. If on a slight bottom heat they will root all the quicker, but in the open air there is not so much loss through damping. When well rooted place them singly in 3-inch pots, in which they may remain until after Christmas, when they can be transferred to others 6 inches in diameter, and be treated as advised for the spring-rooted plants.

SELECTION OF VARIETIES.

The following is a short list of what I consider the best varieties:—Albert Victor, rich rose, edged white; Champion, white, shaded blush, lake blotch on lower petals, immense trusses, and fine habit; Countess,

large flower, of a distinct shade of cerise salmon, with white throat, good habit; Digby, grand, blush white, feathered maroon, crimped edges; Decorator, a fine variety, deep red, with dark blotches on upper petals; Dorothy, salmon, shaded rose, dark blotch on upper petals, very free; Duke of York, rose, with dark blotches on upper petals, of a vigorous habit; Duchess of Edinburgh, white, tinted blush, crimped edges;

light centres, fine dwarf habit; Kingston Beauty, white, with dark purple spots on upper petals; Madame Thibaut, white marble rose, immense truss, and good habit; Martial, rich crimson, top petals darker, a telling variety; Pearl, white, crimped edges; Prince George, nice shade of soft pink, blotched blackish maroon, enormous trusses; Purple Emperor, a very dark variety, bold flowers, and good habit;



FIG. 68—SOPHRONITIS GRANDIFLORA.

Edward Perkins, orange scarlet, with maroon blotch on upper petals; Emma Hays, clear soft rose, upper petals crimson, well formed and very free; Emperor of Russia, dark maroon crimson, marked white; Empress of India, intense shade of salmon orange, light throat, immense pip and truss, a grand variety; Goldmine, a very telling variety, colour rich orange scarlet; H. M. Stanley, soft shaded lake, upper petals deeper with

Radiant, crimson, top petals blotched darker, perfect habit; Sir T. Lawrence, purplish red shaded chocolate, white throat, good habit; Triomphe de St. Mandé, magenta, suffused crimson, truss very large, good habit; and Volonte National alba, pure white, massive flower, a grand addition.—(Abstract of a paper read by Mr. J. DIXON, Gardener, at a meeting of the Sheffield Chrysanthemum Society.)

BRIEF NOTES ON ALPINE FLOWERS.

CAMPANULA DRABIFOLIA.

ONE finds as a rule that growers of alpine flowers are disposed to view with more or less contempt the many dwarf annual flowers which would add greatly to the attractions of their rock gardens. They may, however, be made of use in several ways, among which may be mentioned the temporary furnishing of a space to be occupied permanently by some perennial plant, or carpeting the resting place of bulbs. From time to time I may have the opportunity of referring to some of these annual plants, a considerable number of which are not frequently seen.

The little Bellflower known as *Campanula drabifolia* is one which is excellently adapted for the rockery, not only on account of its intrinsic beauty but also because of its dwarf and unobtrusive habit. Compared with the *Portulaca* or *Mesembryanthemum tricolor*, sometimes used for the purposes mentioned, it may be comparatively dim in colour, but it is quite in keeping with its surroundings, and is, moreover, nearly as good on a rainy day as a sunny one. This is certainly an advantage in a climate like ours. I am somewhat in the difficult position, however, of recommending a plant of which one has to say that we do not know where seed can be obtained. I think there is little doubt that it can be procured from some of the larger seed firms, although not included in their catalogues. It is well worth being at some trouble to secure, so pleasing is it with its pretty flowers and neat habit of growth. The flowers of the type are of a pretty violet blue with a tinge in it of the purple so prevalent in the genus, and with a white tube. The flowers are very freely produced above the leaves, which, like the rest of the plant, are covered with little stiff hairs. There is also a white variety, but this looks ineffective in most positions. The whole plant is only about 3 inches high. It was to be seen growing a year or two ago on one of the beds in the arrangement of plants in the Royal Gardens, Kew. The *Draba*-leaved Harebell was introduced from the Island of Samos in 1823, and ought to have the treatment of a half-hardy annual.

RHODODENDRON PRÆCOX.

Your correspondent "A. D." performed a useful service in lately drawing attention to this beautiful early-flowering *Rhododendron*. I may perhaps be allowed to endorse all he says in its favour and to point out how valuable it is for the rock garden. There is, it is true, considerable variety in the way of shrubs suited for this purpose, but this little one yields to none in its beauty at so early a season as February and March. It is, I think, superior to either *R. ciliatum* or *R. dahuricum*, its parents, and in this garden it is greatly admired by those who see it at this time of the year, when its foliage is hidden by its rosy-peach coloured blooms. It appears to be quite hardy, having pulled through the extraordinary winter of 1894-95 without injury on the top of a rockery.

SAXIFRAGA BURSERIANA MAJOR.

Possibly there may be some who would like to know something regarding the remark made in these notes, on page 215, that "there are two varieties passing under the name of *S. Burseriana major*." It is unfortunately too true that the ordinary form of *Burseriana* is sometimes supplied for the major form, but in addition there are two distinct plants to be found under the name of the coveted and admired larger form. The true form keeps high in price. It has considerably larger flowers than any of the others. It also blooms considerably earlier than the typical *Burseriana*. A fair sized plant of this major form is very beautiful, although it must be said that the flowers always appear to me to have less substance than the others, and that they are produced less freely.

The variety sometimes seen under the same name, which we may for convenience sake call pseudo-major, has flowers little larger than the ordinary *Burseriana*, but it comes into bloom if anything a short time before major. The confusion is rather unfortunate, but it may be forgiven if one is eventually able to secure the three forms—viz., *Burseriana*, *B. major*, and *B. pseudo-major*. The last I received from an experienced cultivator who afterwards told me that a high authority on Alpine flowers said it was not the true major—an opinion with which I quite coincide.

MAIANthemum CONVALLARIA.

It is rather distressing for those who are acquainted with this little flower to have to search for it in the Kew Handlist. I believe I first got it a good many years ago as *Convallaria bifolia*, and it has also at various times appeared as *Smilacina bifolia* or *Maianthemum bifolium*, and now we must accustom ourselves to the name of *Maianthemum Convallaria*, which is Weber's title for it. It has also, I see, been called *Smilacina canadensis*. If we asked "An Old Boy" who has been ably pointing out the usefulness of learning the meaning of the botanical names of plants, he would tell us that *Maianthemum* means "May Blossom," from the time in which it blooms. From the specific name, which I take to be used as being the pre-Linnean generic one, we may safely make use of the English form, and speak of the "Lily of the Valley May Blossom."

Quite a union of pleasant sounding names, and a full recompense, surely, for being burdened by botanists with such a Latin name! It is a modest little flower, too, but although so shy and retiring in its ways has been figured in good books several times. This little May Blossom is a native of the northern temperate regions, and is found in some parts of Britain. It grows only 7 or 8 inches high, producing from each crown a couple of leaves and a raceme of from twelve to thirty very small white flowers. It possesses, as a matter of course, no brilliancy,

but is a pretty little plant in a moist and shady corner of the rock garden, where it can ramble among the stones with its creeping root-stocks. Although this "May Blossom" runs pretty freely, it can be easily kept within bounds.—ALPINUS.

(To be continued.)

NATURAL BEAUTY IN PLEASURE GROUNDS.

FORMALITY and a primness that chills are too often apparent in pleasure grounds, and the truth we need to grasp is the power of Nature to afford beauty. Let us idealise a little. It may be, we have broad lawns stretching outwards from two or more sides of the mansion to the very boundary. Dotted about are mixed clumps of grasses, shrubs, and small trees, carefully kept within limits which are strictly geometrical, viewed from walks as straight as a ray of light, or else bending in fantastic curves, made even when no obstacles block the way. These and a few other petty contrivances all tend in one direction—viz., the ousting of Nature to so-called Art.

Mentally viewing the subject, let us suppose ourselves at the outer limit or boundary. We have seen that closely shorn lawns are carried to this extreme, bordered probably by a belt of dark thought-saddening evergreens, which it may be are ineffectual to screen some ungainly object or objects just outside. Some 30 yards inwards a walk bisects the lawn, leaving between the outer belt and itself a strip of the aforementioned short grass, in which a group of Laurels are compactly arranged. Other artificialities may also exist.

Now, instead of machining the grass to the edge of the pleasure ground area, let us leave it slightly towsey, only using the scythe to restrain it from dire rampancy. Thus shall we have a beautiful mantle of the freshest green. Also, instead of having clumps of stiff Laurels placed so accurately in their various positions, we should much more enjoy the scene if a rotery and branchery (not a large one) could be formed—one which would appear as if Nature had made it—of old gnarled roots and branches of Oak, Elm, or Ash, having all the knots, fissures, and scars preserved, to add to them interest and beauty. Suppose we had the materials, our first thoughts would be as to where we might place them. This, of course, cannot be settled by mere statements on paper, especially so in this mental picture.

If we follow the general rules for beauty no glaring effect must be produced, no great piles of huge roots on view, and if the strip of lawn be a long straight stretch we must not have a great mound in the centre of the space, or yet at the ends. Better to have one or two small adornments blending with the herbage around them, and hidden each from the other, yet producing at different points a pleasing effect. Have any of you ever roamed through a neglected forest? If so, did you observe those huge limbs slumbering in negligent security, not too closely yet together? Through the same neglect which laid them there mosses and lichens have overspread them, wavy grass wanders lovingly among hardy Ferns, and, as if keeping guard over a sacred charge, the stately Foxgloves tower over all. Leaves blow in and about them, depositing material for new vigour and fresh embellishment.

Cannot we then reproduce a forest picture in a garden? Have your rugged tree roots set in a fashion indicative of upturned trees, one or two crooked limbs lying peacefully at the base of a gentle slope, which should taper away gradually on that side least exposed to the admirer. We only wish a few roots carefully placed, or a tree trunk and limbs somewhere near, lying well firmed on a carefully studied outline, an outline which Nature herself might have figured. It will also be necessary to have a background, a rest for the eyes. Nothing it seems to me could be better than a considered selection of *Rhododendrons*. These should spring from the base of the bank on the boundary side, so that the bank with its roots and branches lie between them and the observer from the walk. Dwarf narrow-leaved varieties of a white or soft pink colour should be to the front, while backwards those of more prominent foliage and darker hue of bloom might be more sparsely diffused, allowing room for the spread of the strong arms and haughty heads of the Giant or Cow Parsnip (*Heracleum giganteum*). These, when as if aimlessly traced away back in the depths of green, have an appearance unique in their dignified serenity.

Might I suggest the use of those gems the Birches? The silvery white bark, the long, pendent, whipcord-like streamers called branches, or perhaps branchlets, and the lovely serrated leaves, give this tree, at least many of its varieties, almost incomparable delicacy. Many species are known, but for brevity and aim I shall only mention the pendent form commonest with us, *Betula alba Youngi*. I would have these hovering on the outskirts acting as rearguards. And could we not use the light, hardy, and valuable Larch trees as protectors and guardians of all within the pleasure ground limits?

It will be seen that the choice has been to render the completed whole one of lightness, restful, and interesting beauty. It would be bad taste, I fear, to try further improvements by dotting about more of shrub and tree growth. Simplicity weds with negligence in Nature. We might add a few climbing Roses, twining these up and around the stems and lower branches of the Birches. Space hampers my detailing or even suggesting more of these twining or climbing plants, the healthful elegance of which are known to all.

But are we to leave out of thought the jewels—the bonnie wee flowers? No. The Snowdrop, so fresh and early, would be at home there. Also I love the wax-like white Crocus, the Poet's Narcissus, the sweet-scented Woodruff, and the *Campanula turbinata alba*, which give

choice of white flowers. *Scilla sibirica*, wild Hyacinths, *Chionodoxas*, Forget-me-nots (*Myosotis*); the trailing and wild Vetch, are among a long list of differing blues. *Primula vulgaris*, the common Primrose; Cowslips, *Alyssum saxatile compactum*, a root or rockwork gem; *Doronicums*, for moist, shady corners, give the yellows. Then we may have the varied colours of the cultivated Primroses. The red hues and modifications are supplied from *Geranium Robertianum*, which should have an exalted position; the Fairy Orange Moss, with scarlet berries; the Mediterranean Heath, and carpets of the various wild Thymes; ochre coloured Ragworts, and numerous dwarf herbaceous plants with distinct and telling colours; carpeting these throughout the grass, in and about the rootery and bases of the trees—not in isolated patches, but in mantles widespread in harmony. Arabis, Aubrietias, Foxgloves, and, oh! never forget the Ferns, so fresh, free and graceful; we shall consider them subsequently. Enough is said at present to make us feel that "Gardening is the purest of human pleasures, and the greatest refreshment to the soul of man."—A YOUNG SCOT.

EXCRESCENCES ON PEACH TREE ROOTS.

I AM sending you some Peach tree roots, with excrescences. The trees were first grown outside on a south wall, and although they have the disease outside, they grow and bear good crops; but when I bring them into the Peach house they soon get a great deal worse, until the trees die entirely. The Peach house has only been built about fourteen years; the border was well made and drained at the time, and the trees grew well the first seven or eight years. There is a good deal of old lime rubbish in the border, which makes it rather porous, and requires water about once a fortnight in summer. It seems rather a worse case than any I have read about in books or papers. Will Mr. Abbey kindly examine them, and let me know the cause, and if possible the cure?—J. L.

[The roots are much swollen here and there, the excrescences being two to three times as thick as the normal roots, and occupy about half of their length. This is a very serious state of things, and quite distinct from suckering, knobs in that case being formed on the roots, adventitious buds produced, and ultimately sucker-growths appear in abundance. The roots are quite healthy where there are no excrescences, having clear stout bark and sound wood, and the fibres are clean, plentiful, and healthy.]

The excrescences consist of both dead and living parts, having much the appearance of a bad case of canker, and may not inaptly be termed, as roots so affected have frequently been, root canker. In the dead part I first came across some white worms, one-eighth to three-sixteenths of an inch in length, which are the young of the root-hair sucking white worm (*Enchytraeus Buckholzi*), and common on roots and stems undergoing decay. This worm has a bad character, but it certainly was not the cause of the excrescences on the roots. The worms died instantly in a solution of aniline, one part in twenty parts water, not so much as once writhing.

Following up the dead tissue to the living, I found there a host of mites nestling on the living tissue in the crevice formed by the bark and wood. To seize two between the tweezers and place them in a drop of aniline solution was the work of a moment, and looking through the eye-piece of a small microscope enlarging 25 diameters I had them represented $\frac{7}{8}$ -inch long, female and $\frac{5}{8}$ -inch long, male. They never moved after being placed in the solution of aniline, 1 in 20 parts water. This was very satisfactory, for I do not care to see even microscopic creatures writhe and suffer as I have seen in the case of eelworms, therefore have striven to get hold of something that would render them as "still as mice."

The excrescences, then, are caused by the root-mite *Rhizoglyphus robini*, *Ciaporède*, which is only distinguishable from the bulb-mite, *R. echinopus*, by the female having a very thick and clumsy third pair of legs, thus throwing the fourth pair further back. The specimens, however, are only in the six-legged stage. They are whitish grey, pellucid, and appear like a speck of jelly with an ordinary pocket lens say magnifying 6 diameters. The very interesting creatures belong to the family of the cheese-mite, *Tyroglyphidae*.

The root-mite causes the excrescences by biting and sucking at the cellular tissues of the roots, killing some cells, and the tree on its part producing new ones to exclude the parasite, hence the excrescence gradually enlarges, and this goes on year by year until the dead tissue surrounds the roots attacked, then the tree dies. This may not occur for years, but the affected trees become sickly and go off by degrees. It affects trees both outdoors and under glass, and is very widespread. I have found it on nearly all leguminous plant roots that have been examined for nitrogenous nodosities, and is frequently associated with eelworms. In pursuing my investigations I was led to seek for something that would kill the mites and eelworms without prejudice to the "bacteroids"—the micro-organisms that convert free into assimilable nitrogen, and have succeeded in doing the best possible for the suffering plant.

The substance is aniline (C_6H_7N). As an insect killer nitro-benzole ($C_6H_5NO_2$) would perhaps suit the purpose as well, but there are "agonies" in it, whereas in aniline solution, 1 in 20 parts water, there is nothing of the kind with micro-animals, and even such large creatures as black ants die in one minute. The solution is as clear as water, hence cannot stain foliage, and does not injure the most delicate leaves. Any lady may use it in the drawing-room, as it is not in the least offensive,

but on the contrary, a faintly pleasant smell. The finest possible film from an atomiser kills thrips and all of that ilk; indeed, what in the insect way it will not kill, including mites and eelworm, I do not know, but anyone giving it a trial can convince the Editor and myself by sending specimens to the former. Send 'em alive, neatly packed in a little damp, not wet, moss, and I may perhaps send a good account of them in return.

The cure (if any) for these mites is chemical manures. I do not recommend any in particular. There is Thomson's (long proven), Pearson's (a canker cure), and no end of others advertised. They contain the essential mite-killers, nitric acid and chlorine, and the essential food of the higher plants. I may, however, refer to dissolved bones, 3 parts; muriate of potash, 2 parts; and nitrate of soda, 1 part; mixed, using 2 to 4 ozs. per square yard as a suitable application in this case. For directly killing the mites Little's soluble phenyle, 1 in 96 parts water, or 1 gill (quarter pint) to 3 gallons of water, or, if your correspondent likes to keep up with the highest pace and beat the record, he can use aniline, 1 in 20 parts water, or perhaps it would act quite as well on root-pests in the proportion of 1 in 100 = 1 lb. aniline to 10 gallons water. This, however, is subject for experiment.—G. ABBEY.]

ROYAL HORTICULTURAL SOCIETY.

DRILL HALL, APRIL 13TH.

THESE gatherings seem to become more popular every week, and the one of this date must have made a record. The Floral and Orchid Committees had a large number of superb exhibits before them, while with the Narcissus and Fruit Committees quality took the place of quantity. Herewith we note a few of the most prominent exhibits.

FRUIT COMMITTEE.—Present: P. Crowley, Esq. (in the chair); Rev. W. Wilks, and Messrs. T. Francis Rivers, J. Cheal, W. J. Empson, W. Pope, T. Fife, W. H. Divers, G. Reynolds, J. Smith, C. Herrin, W. Bates, J. Willard, W. Farr, J. A. Laing, G. T. Miles, A. F. Barron, A. Dean, and J. Wright.

The excellent tables of vegetables and fruit formed the chief feature of the meeting, and they were certainly most creditable to the exhibitors; very few products were placed on the Committee table. Mr. John Crooke sent from Forde Abbey, Chard, highly coloured Dumelow Seedling Apples, also very good Sturmer Pippin, and a vote of thanks was awarded. Mr. B. C. Harris sent from Jersey five Pears of "Belle de Jersey"—Uvedale's St. Germain (vote of thanks). Sir Trevor Lawrence, Bart., sent a sample of Anserinus Bonus Henricus—really a bunch of the Lincolnshire Mercury, known also as Good King Henry, Algood, and other names—*Chenopodium Bonus Henricus* of Linnaeus. Mr. Divers remarked that the plants grew wild around Belvoir, and undoubtedly Mercury beds have occupied a portion of hundreds of cottage gardens in Lincolnshire and surrounding counties for generations. The vegetable is also known as Perennial Spinach, and grows like a weed.

Turning to the side tables, Mr. G. Wythes, Syon House Gardens, had an extensive and highly meritorious collection of vegetables, not large bulky produce, but in the majority of instances models of table quality. These included all kinds of root and green crops, including firmly hearted Cabbages, Sutton's Favourite, much admired; Cucumbers, New Potatoes, Beans, Seakale, Asparagus, and Mushrooms, as well as excellent La Grosse Sucrée Strawberries and St. John's Figs. A silver-gilt medal was granted unanimously.

Mr. W. J. Empson furnished a table admirably and artistically with fruit and vegetables. A row of Carter's Early Morn Pea in pots at the back; in front, Royal Sovereign Strawberry in pots, also splendid gathered fruits, very noticeable, as well as Carter's Early Cabbage and Perfection Broccoli, excellent Seakale and Radishes also being represented (silver Knightian medal).

Mr. W. H. Divers sent from Belvoir thirty-six dishes of well kept Apples, a worthy contribution from a private garden at this period of the year (silver Banksian medal).

Mr. W. Farr, gardener to A. Pears, Esq., Isleworth, sent a small but very interesting exhibit consisting of a central basket of fine Strawberries, surrounded by new Grapes, perfectly coloured and old (shrivelled), splendid Mushrooms, and good Dwarf Beans. Considering the larger exhibits, and the medals awarded, a bronze was mentioned for the smaller but scarcely less meritorious assortment; but eventually, and as it proved far more acceptable to the exhibitor, a cultural commendation was unanimously awarded.

VEITCHIAN FRUIT PRIZES.—The competition was not great. For Apples the first prize was awarded to Mr. C. Ross, Welford Park, with Lord Burghley; second, Mr. C. Herrin, Dropmore, with Sturmer Pippin. No prize was awarded for Pears. A dish of Bergamotte Esperen arrived in the Hall after the Judges had left.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with Messrs. H. B. May, H. Herbst, J. Fraser, J. H. Pitt, R. Owen, J. Jennings, J. T. McLeod, R. B. Lowe, C. J. Salter, C. Jeffries, J. D. Pawle, C. E. Shea, E. Mawley, G. Gordon, C. E. Pearson, J. W. Barr, H. J. Cutbush, J. Laing, H. J. Jones, D. B. Crane, E. Beckett, J. Walker, W. Bain, R. M. Hogg, J. Fraser, T. W. Sanders, J. Hudson, G. Paul, C. Blick, H. Turner, and R. Dean.

Mr. Mallender, gardener to Miss Mellish, Hodsock Priory, Notts, sent a small, though pleasing, collection of Narcissi, and Mr. Aitkin, gardener to G. Webb, Esq., Sittingbourne, showed some well-berried branches of *Aucuba japonica*. Mr. Bain, gardener to Sir Trevor

Lawrence, Bart., Burford Lodge, sent a varied collection of Anthurium flowers, which were very effective.

Mr. Rumsey of Waltham Cross sent a nice exhibit of Rose flowers, including Mrs. Rumsey (the firm's latest novelty), Niphetos, and others. Mr. J. F. McLeod, gardener to J. P. Morgan, Esq., Dover House, staged a very effective group of forced plants, including Azaleas, Spiræas, Genistas, and Boronias, interspersed with Palms and fine-foliage plants. Very effective was the large display of Daffodils staged by Messrs. Barr & Son, Covent Garden. To say that the cream of Messrs. Barr's large collection was represented is sufficient to give an idea of the excellence and magnitude of the exhibit.

Mr. George Mount, Canterbury, showed Roses in the style that has made him well known at the Drill Hall. Conspicuous in the exhibit were superb blooms of Mrs. John Laing and well-flowered plants of Crimson Rambler. Mr. H. A. Chapman, gardener to Captain Holford, Tetbury, Gloucestershire, sent a splendid collection of Hippeastrums, which were much admired. The exhibit contained many distinct varieties, several of which were very striking. Mr. J. Walker, of Thame, Oxon, was represented by a charming exhibit, comprised of Niphetos and Maréchal Niel Roses. Very neat and effective was the collection of Daffodils staged by Messrs. Jas. Veitch & Sons, Chelsea. Most of the best forms were represented, giving evidence of the attention to which these flowers are subjected at the hands of the famous Chelsea firm.

Messrs. Kelway & Son, Langport, staged a handsome collection of cut blooms of double Cinerarias, amongst which the colours were well diversified. Messrs. W. Cutbush & Sons, Highgate, arranged an effective exhibit of Boronias, Ericas, Prunus, Magnolias, Staphyleas, Palms, Ferns, and Calla Elliotiana. Miscellaneous foliage and flowering plants were staged by Messrs. J. Laing & Sons, Forest Hill. There were well-grown Cytisus, Clivias, Crimson Rambler Roses, Dendrobiums, Ericas, Ferns, Palms, Crotons, Dracenas, and the black-throated golden Arum called Pentlandi. Mr. H. B. May, Upper Edmonton, sent a collection of clean, finely grown foliage plants. Mr. J. A. Horrell, 295, Southampton Street, Camberwell, sent specimens of his improved acme labels, which are certainly very useful; and Mr. E. Mawley, Berkhamsted, beautiful cut Roses.

Roses in pots were handsomely shown by Messrs. Paul & Son, Old Nurseries, Chesham. The varieties represented included Captain Hayward, Souvenir de S. A. Prince, Mrs. S. G. Crawford, Elise Fugier, Gustave Piganeau, and others. An interesting collection of alpine flowers also came from this source. Messrs. R. Wallace & Co., Colchester, sent a small exhibit, comprising charming Erythroniums, Tulips, Iris caucasica, and Fritillaria pudica. Mr. W. Fyfe, gardener to Lord Wantage, Lockinge Park, sent superb bunches of the fragrant Fortune's Yellow Roses. The blooms were of excellent quality.

The Rev. G. H. Engleheart, Appleshaw, Andover, sent a considerable collection of hybrid and seedling Narcissi of his own raising. Many of the specimens were of great merit, and they formed a conspicuous exhibit. Mr. Downe, gardener to J. T. Bennett-Poë, Esq., staged a large collection of Narcissi in great variety.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); with Messrs. J. O'Brien, De B. Crawshaw, H. M. Pollett, C. J. Lucas, H. Ballantine, W. H. Young, W. H. White, W. H. Protheroe, H. J. Chapman, A. H. Smee, E. Hill, F. J. Thorne, W. Cobb, A. Mason, T. B. Haywood, S. Courtauld, and J. Douglas.

Messrs. F. Sander & Co., St. Albans, were strong in Orchids as usual, sending well-grown examples of Odontoglossum vexillarium, Dendrobium Phalaenopsis Schölerianum, Cattleyas, Phaius Owenianus, Odontoglossums, and some charming plants of Lycaste Skinneri. Mr. W. Whiffen, gardener to J. Bradshaw, Esq., Southgate, N., staged a pleasing collection of Orchids, largely composed of Odontoglossums and Cymbidiums. Mr. A. Methven, gardener to Marquis Camden, Lamberhurst, sent a fine display of Dendrobiums in several varieties.

Mr. G. Cragg, gardener to W. C. Walker, Esq., Percy Lodge, Winchmore Hill, sent Cattleyas in fine condition; as did Mr. Downe, gardener to J. T. Bennett-Poë, Esq., Chesham. His were handsome specimens of Cattleya citrina. Mr. W. H. White, gardener to Sir Trevor Lawrence, Bart., Dorking, staged Masdevallias, Dendrobiums, and other Orchids of considerable interest. Mr. F. J. Thorne, gardener to Major J. Joicey, Sunningdale, sent very fine specimens of Epidendrum bicornutum, which were examples of good culture.

Quality and variety characterised Messrs. J. Veitch & Sons' (Ltd.) group of Orchids. The plants were all splendidly grown, and included Masdevallias, Cattleyas, Odontoglossums, Epidendrams, Cymbidiums, and several others. Mr. Duncan, gardener to C. J. Lucas, Esq., Warnham Court, Horsham, staged a collection of spikes of Odontoglossums. Mr. S. Cooke, gardener to De Barri Crawshaw, Esq., Sevenoaks, sent a collection of Odontoglossums.

CERTIFICATES AND AWARDS OF MERIT.

Amaryllis Brenda (J. Veitch & Sons, Ltd.).—A rich, deep variety with handsomely formed crimson flowers (award of merit).

Amaryllis Chimbarosa (H. Chapman).—The colour of this is very deep crimson (award of merit).

Amaryllis Duke of York (H. Chapman).—Fiery scarlet is the colour of this variety (award of merit).

Amaryllis Ignacite (J. Veitch & Sons, Ltd.).—White is the ground colour of this variety, the splashes thereon being purplish crimson (award of merit).

Amaryllis The Czar (H. Chapman).—A rich velvety crimson variety of much beauty (award of merit).

Amaryllis Thunberg (J. Veitch & Sons, Ltd.).—An immense flower, of which the colour is scarlet with an orange shading (award of merit).

Amaryllis Topaz (J. Veitch & Sons, Ltd.).—Brick red margined white in this flower make a charming variety (award of merit).

Erythronium revolutum (R. Wallace & Co.).—This is now flowering in this country for the first time. The colour is white, delicately flushed with rose (first-class certificate).

Fuchsia Addington (H. Cannell & Sons).—This is said to be a hybrid between *F. fulgens* and *F. splendens*. The colour is bright crimson scarlet, while the habit infers that it would form a handsome standard (award of merit).

Lælio-Cattleya Digbyana-Trianæ (J. Veitch & Sons, Ltd.).—One of the most beautiful Orchids that was in the Drill Hall. The sepals and petals are delicate purplish rose, while the lip is quite the style of *Lælia Digbyana*. The centre is golden, and the throat rose (first-class certificate).

Muscari conicum (Barr & Son).—A very rich blue Grape Hyacinth, with particularly large spikes (award of merit).

Narcissus Beacon (Rev. G. H. Engleheart).—This is of the Parvicoronati section. The crown is brilliant orange red, and the perianth segments yellow (award of merit).

Narcissus M. de Graaff (T. S. Ware).—A small flower with white segments and a lemon coloured cup (award of merit).

Narcissus Snowdrop (Rev. G. H. Engleheart).—A singularly beautiful flower of a delicate creamy white hue. The trumpet is straight, and the segments broad and blunt (award of merit).

Odontoglossum Andersonianum Danhurst variety (E. Short).—A handsome variety. The creamy sepals and lip have bright brown blotches of which the petals are free (award of merit).

Odontoglossum Wilckeanum Queen Empress (W. Ballantine).—A superb Orchid. The centre of the sepals and lip are almost wholly bright brown, the margins and tips being golden, as is the base. The petals are spotted as well as blotched with brown (first-class certificate).

Ornithogalum grandiflorum (J. Laing & Sons).—After the style of *O. arabicum*, but lacking the familiar black spot (award of merit).

Solanum tuberosum variegatum (E. Beckett).—A beautifully white and green variegated Potato (award of merit).

Tropæolum Phæbe (H. Cannell & Sons).—Golden yellow, with scarlet and crimson blotches, is the colour of this *Tropæolum* (award of merit).

Zygopetalum Perrenoudi superbum (J. Veitch & Sons, Ltd.).—A hybrid between *Z. maxillare Gautieri* and *Z. intermedium*. The narrow sepals and petals are brown, edged greenish yellow, and the lip is blue margined white (first-class certificate).

MEDALS.—As will readily be understood the medals were numerous and included to exhibits before the Floral Committee silver-gilt Flora, Mr. J. F. McLeod; silver Flora, Messrs. H. Chapman, W. Cutbush and Son, Paul & Son, and G. Mount; silver Banksian, Messrs. H. B. May, J. Walker, W. Rumsey, and W. Fyfe; bronze Banksian, Messrs. E. Mawley and W. Bain. Orchid Committee silver Flora, Messrs. F. J. Thorne, J. Veitch & Sons (Ltd.), and J. Bradshaw; silver Banksian, Messrs. W. H. White, De B. Crawshaw, C. J. Lucas, and Marten.

PRUNUS TRILOBA.

ANYONE who has seen this Plum in full flower cannot fail to be impressed by its beauty, yet it is not grown on nearly such a large scale as its merits entitle it to be. At the present time (March 29th) it is to be seen in flower in several places at Kew. Two beds of it are to be seen within a short distance of the main entrance, and a large plant may be seen in full flower on a wall close to the succulent house. Although perfectly hardy, and doing well in beds or as specimen plants on the lawn, it is as a wall plant that this Plum is seen at its best; the wood then gets thoroughly ripened, and flowers are produced thickly along the full length of the previous year's growth. The individual flowers are 1 inch across, delicate pink in colour, and produced before the leaves.

When planting good soil should be given, and when grown against a wall, after the main branches have attained the desired length, all other growth should be spurred-in as soon as flowering is over; this will allow a long growing season for the production of flowering wood for the ensuing season. Only the main branches should be secured to the wall, the others (from the spurs) being allowed to hang in a natural and graceful manner. The average length of the yearly growth is about 2 feet. China is the home of this beautiful hardy plant.—W. D.

INCREASING CHURCH FUNDS.—"It may interest many people to know that the restoration of St. Bartholomew-the-Great Church, West Smithfield, London, has been promoted to the extent of £120 by the sale during Lent for the last few years of the pods of a kind of Trefoil called Calvary Clover at the price of 6d. each pod. It is in many ways an interesting plant," says a writer in a daily contemporary. "The leaves have a blotch at the base of each leaflet, bearing quite a striking resemblance to a spot of fresh blood, which gradually dies away as the plant grows. The pod is spirally wound into a ball bearing numerous interlacing thorns on its margin, and when unwound, which is easily done, is remarkably like a crown of plaited thorns. It seems to be the custom to sow the seeds on Good Friday. They are still to be had of the vergers at the church in aid of the work going on in the church."

SCHIZOCODON SOLDANELLOIDES.

FEW exhibits attract more attention than the beautiful little *Schizocodon soldanelloides* (fig. 69). It was brought by the exhibitor from Miganoshta, Japan, in 1891, named at Kew, and stated by the authorities there to have been the first living plant brought to England. It was first shown at the Crystal Palace in the spring of 1892, and referred to in the *Journal* at that period as bearing a resemblance in foliage and flowers to *Shortia galacifolia*. It is a dwarf plant, attaining to a height of 2 to 3 inches only, and bearing its charming rosy flowers very freely. A marked feature of the latter is the deep laciniation of the segments which makes the flower look as if fringed. It is a most beautiful little plant, and it is to be hoped that it will seed readily, so that a stock may be procurable. We should be interested to hear whether such is the case or not. The plant has proved quite hardy during the past winter, and it may therefore be classed as a valuable addition to the list of choice outdoor plants. We trust this information will be of assistance to "A. J. B."

SPRING SHOWS.

BRIGHTON.—APRIL 6TH AND 7TH.

THERE was a marked improvement in this show, and throughout competition was keener than usual. One of the most attractive features was a mantlepiece, mirror, and imitation fire screens, the mantle, 5 feet by 1 foot, to be dressed with plants. It is a new class for Brighton, and was very successful. Mr. E. Meachen, gardener to Mrs. Armstrong, Woodslee, Preston, was ahead of Mr. G. Miles, Dyke Road, Brighton, with a remarkably neat arrangement of *Asparagus*, *Masdevallia*, and *Isolepis gracilis*.

In the chief class for groups, Mr. G. Miles beat Mr. E. Meachen handsomely, his arrangement being particularly neat and graceful. In both of the foregoing classes Mr. H. Anscombe, Bristol Road Nursery, Kemp Town, was a creditable third. Mr. G. Miles also won for a table of flowering plants, this time being closely followed by Mr. H. Anscombe. Orchids were fairly good, the best pieces being *Dendrobium Dalhousianum* and *D. thyrsiflorum*; also a grand piece of *Cypripedium philippinense* contained in the winning table from Mr. H. Garnett, gardener to R. G. Fletcher, Esq., Mount Harry, Preston.

Hyacinths, Tulips, Lily of the Valley, and other pot plants were very good. Mr. W. E. Anderson, gardener to S. Cowell, Esq., Melodia, Preston Park, was ahead for twelve Tulips in a strong class, and Mr. H. Anscombe, Kemp Town, for a similar number of Hyacinths. For twelve pots of Lily of the Valley, Mr. A. E. Golding, gardener to H. S. Voules, Esq., Dyke Road, Brighton, won with some grand examples, but was closely followed by Mr. L. Wickens, gardener to Mrs. Dawson Rowley, Chichester House, Kemp Town.

Mr. J. Hill, gardener to M. Wallis, Esq., Springfield, Preston, won for six pots of *Lachenalia*s; Mr. C. M. Carter, gardener to F. Freeman-Thomas, Esq., Ratton, Withdean, for double Violets; and Mr. W. E. Anderson, gardener to S. Cowell, Esq., for six well flowered *Freessias*. *Marguerites* and pot *Narcissi* were extra good; Messrs. W. Miles & Co., Church Road, Hove, taking first in each class; Mr. M. Tourle, gardener to F. Barchard, Esq., Little Horsted, coming very close for the pot *Narcissi*. In a class for twelve bunches of cut *Narcissi*, Mr. M. Tourle was well ahead, staging one of the best collection we have seen. The twelve pots of *Cyclamen* from Mr. E. Murrell, gardener to Mrs. Jenkins, Burgess Hill, were also worthy of special mention. Show and Zonal *Pelargoniums* were neither so good nor numerous as usual here. In a class for nine greenhouse *Azaleas*, Mr. H. Naylor, gardener to Mrs. Macdonald, Preston, had some good specimens. Six *Mollis* varieties found Mr. G. Miles, Dyke Road Nursery, ahead, and also in a class for six *Lilium Harrisii*.

Some of the non-competitive exhibits were extra good. A grand group came from Messrs. Laing & Son. Messrs. Balchin & Sons also had a most effective stand; Messrs. Barr & Sons sending a table of *Narcissus* and other spring-flowering bulbs. There were good cut *Roses* and seedling *Carnations* from Mr. G. W. Piper, The Nurseries, Uckfield, and also plants of *Crimson Rambler*, well covered with flower.

AURICULA AND PRIMULA.—APRIL 13TH.

ON Tuesday last the annual show of the southern section of the above Society was held at the Drill Hall in conjunction with the meeting of the R.H.S. Owing to the early date of the show the exhibits were not quite so numerous as in previous seasons, though the quality throughout was quite up to the usual standard. The flowers being young looked fresh and sturdy, and for this reason the early date of the show was an advantage. Below is given the list of the chief prize-winners.

In the class for twelve dissimilar Auriculas, Mr. A. J. Sanders, gardener to Viscountess Chewton, Cobham, was placed first with fine flowers of Rev. F. D. Horner, Richard Headley, Mrs. A. Potts, George Rudd, George Lightbody, Mrs. Dodwell, Prince of Greens, Heroine, Acme, Abbé Lizst, Rachel, and John Simonite. Mr. C. Phillips, Bracknell, gained second prize, also showing good flowers. Mr. P. J. Worsley, Clifton, came third; and Mr. J. T. Bennett-Poë, Ashley Place, S.W., fourth, these comprising the whole of the competitors in the class. Mr. C. Phillips had the best half dozen Auriculas, showing Mrs.

C. Phillips, Miss Bennett, Rev. F. D. Horner, and George Rudd in good condition. Mr. A. J. Sanders was justly placed second, Messrs. J. T. Bennett-Poë and P. J. Worsley following third and fourth in the order named.

Mr. Smith, Bishop Stortford, was first with four Auriculas, showing Heroine, Acme, Rev. F. D. Horner, and Rachel. Mr. A. R. Brown, Birmingham, was second; and Mr. J. Gilbert, gardener to Rev. L. R. Flood, Merrow Rectory, third. Mr. A. R. Brown was first for two Auriculas with Heather Bell and George Lightbody; Mr. W. Smith was second; third, Mr. J. Gilbert; fourth, Mr. A. Fisk, Broxbourne; and fifth, Mr. Coulling, gardener to W. W. Palmer, Esq., Shortlands, Kent.

The first prize for fifty Auriculas was well won by the Guildford Hardy Plant Company, who showed compact plants with sturdy footstalks. Twenty varieties were specified to be represented, and these included Buttercup, Lord of Lorne, Acme, Heroine, Black Bess, Friar Tuck, Mrs. A. Potts, Heather Bell, and Phyllis. Mr. James Douglas, gardener to Mrs. Whitbourn, Great Gearies, was a good second, though

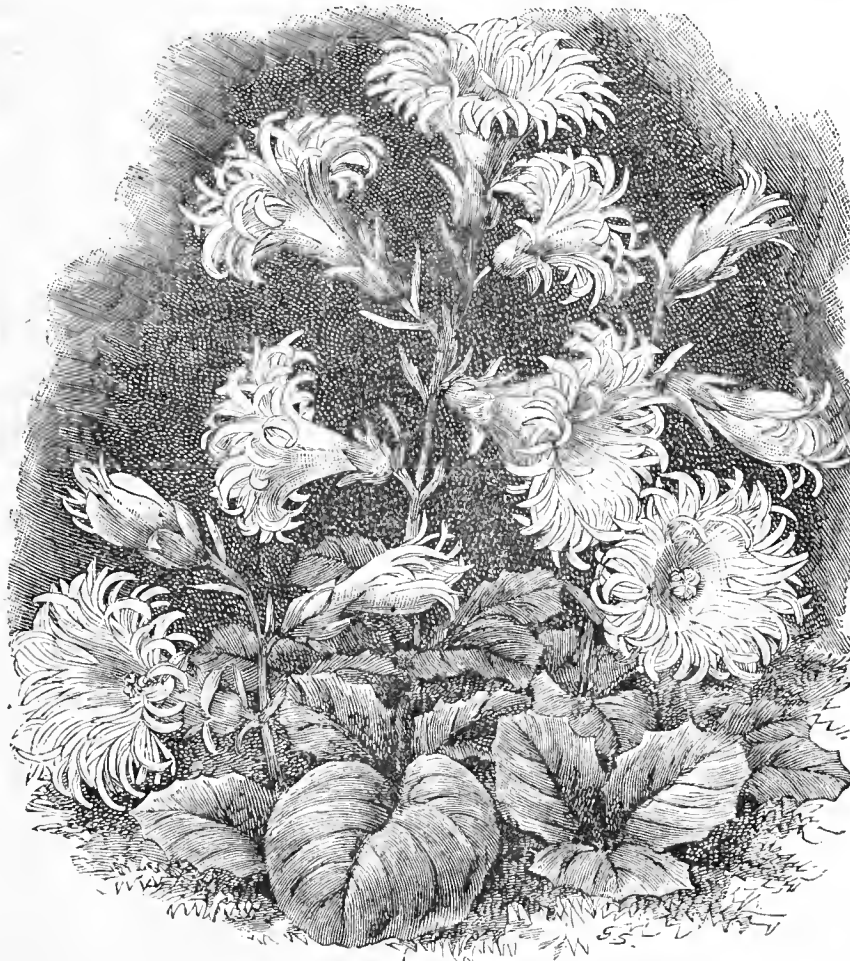


FIG. 69.—SCHIZOCODON SOLDANELLOIDES

his plants were not quite so regular as those of the former, and the third prize went to Mr. A. J. Sanders.

In the class for a single specimen of green-edged Auricula Mr. A. J. Sanders was first with Rev. F. D. Horner; second, Mr. C. Phillips; third, the Guildford Hardy Plant Co.; fourth, Mr. C. Phillips with the same variety; fifth and sixth, Mr. Jas. Douglas with Abbé Lizst; and seventh, Mr. W. Smith with J. Hannaford; eighth, Mr. P. Hemnell with Prince of Greens. Mr. Jas. Douglas had the best grey-edged specimen with George Lightbody; second, Mr. C. Phillips; third, Mr. A. J. Sanders with the same variety; the Guildford Hardy Plant Co. was fourth with Marmion; fifth, Mr. W. Smith with Geo. Rudd; sixth, Mr. Walker with Grey Friar; seventh, Mr. J. T. Bennett-Poë with George Lightbody. Mr. J. Douglas was first with a white-edged specimen, showing Acme; second, Mr. C. Phillips; third, Mr. J. T. Bennett-Poë with the same variety; fourth, Mr. W. Smith with Geo. Rudd; fifth, Mr. C. Phillips with Geo. Lightbody; sixth, Mr. Douglas with Acme; seventh, the Guildford Hardy Plant Co. with the same variety; and eighth, Mr. J. Douglas with Rachel. Mr. J. Douglas was first with a single self specimen, showing Mrs. Potts; second, Mr. A. Fisk; third, the Guildford Hardy Plant Company, all with the same variety; fourth, Mr. C. Phillips with Mrs. C. Phillips; fifth and sixth, Mr. P. J. Worsley with Heroine; seventh, Mr. A. J. Sanders with Viscountess Chewton; and eighth, Mr. T. Barefoot with Heroine.

In the Alpine section Mr. Chas. Turner, Slough, took the first prize with twelve, showing Diamond Jubilee, Countess, Exquisite, Defiance, Mingo McGeorge, Bella Wheelwright, Charles Phillips, Unique, John Beswick, Nellie, Sunrise, and a seedling. Mr. C. Phillips was a fair second; Mr. J. Douglas third; Mr. A. J. Sanders fourth; and the Guildford Hardy Plant Co. fifth. Mr. Chas. Turner also had the best half dozen Alpines, showing Countess, Sunrise, Edmund Shaw, Nellie, Chas. Turner, and a seedling in good form. Mr. C. Phillips was placed second; and the third, fourth, and fifth prizes went to Messrs. W. L. Walker (Reading), Jas. Douglas, and J. J. Keen (Southampton) in the foregoing order.

Mr. W. L. Walker had the best four Alpines, showing fine blooms of Ormonde, Defiance, Olivia, and J. F. Kerr. Mr. J. J. Keen was a fair second; Messrs. A. Fisk, J. Gilbert, and J. T. Bennett-Poë following

third, fourth, and fifth. Mr. Walker had the best single specimen of Alpine with gold centre, showing Ormonde; second, Mr. A. Fisk with Hotspar; third, Mr. J. Gilbert with Mingo McGeorge; fourth, Mr. J. J. Keen, with a seedling; fifth, Mr. Charles Phillips with Evelyn Phillips. Mr. Walker was first with a single specimen with cream centre, showing Thetis; second, Mr. Walker with Defiance; third, Mr. A. J. Sanders with John Gilbert; fourth, Mr. Charles Phillips with Perfection; and fifth, Mr. J. Gilbert with Bessie. The Guildford Hardy Plant Co. had the best twelve Fancy Auriculas, showing Bronze, Innocence, Rolts' Green, Khartoum, Belle, Old Gold, and several seedlings. The second place was taken by Mr. James Douglas.

Mr. A. J. Sanders took highest honours with twelve Polyanthus, exhibiting well flowered plants. Mr. Jas. Douglas was a good second, and Mr. George Dixon, Chelford, third. Mr. Jas. Douglas had the best dozen single Primroses, the plants being well bloomed. The second prize was creditably won by Mr. A. J. Sanders. Mr. J. Douglas was first with six double Primroses, The Guildford Hardy Plant Company second, and Messrs. Paul & Son, Cheshunt, third.

Mr. Jas. Douglas obtained first prize with twelve Primulas of distinct species or well marked varieties, the exhibit being very effective. Messrs. Paul & Son took the highest award with six Primulas, subject to the same conditions as the above. Mr. Jas. Douglas had the best basket of Polyanthus and Primroses arranged for effect, the Guildford Hardy Plant Co. being second, and Messrs. Paul & Son third. Mr. Jas. Douglas also showed a most effective collection of Primulas and Auriculas, which took first prize, the Hardy Plant Co. following a good second. Mr. Jas. Douglas was granted a first-class certificate for Alpine Auricula Duke of York, and also for a green-edged Auricula Greenfinch, also for a gold-centred Alpine, Mrs. Markham. Mr. Walker obtained first-class certificate for gold-centred Alpine Ormonde and cream-centred Alpine Olivia.

PRESENTATION TO MR. JAS. DOUGLAS.

A pleasant feature in connection with the above Show was the presentation to Mr. Jas. Douglas of a testimonial on his retirement from active connection from the Carnation, and Auricula, and Primula Societies. In the unavoidable absence of Sir John Llewelyn, the presentation was made by Martin R. Smith, Esq., at the annual dinner, at the Hotel Windsor. The Chairman spoke in eulogistic terms of the service rendered in the past by Mr. Douglas in the interest of the two Societies named, and added that it gave him great pleasure to make the presentation, which took the form of a handsome clock, value £14 10s., and a cheque for £38, making a total of £52 10s.

Mr. Douglas made a suitable reply, in which he tendered his thanks to the Hon. Secretary, Mr. Henwood, for the assistance he had received from him in the past, and for the efforts he had taken in getting together the testimonial. He further thanked those present and others who had subscribed for the honour they had done him. Mr. Douglas spoke further of the able florists who had been the first pioneers of the Societies, and hoped that they would still flourish under the auspices of the younger men, on whom now fell the responsibility of their welfare.

THE YOUNG GARDENERS' DOMAIN.

THE DOUBLE WHITE PRIMULA.

FOR yielding a supply of bloom for cutting through the autumn and winter months, this Primula cannot be too highly commended. Our method of cultivation is as follows:—At the commencement of April, old plants which have finished flowering receive a top-dressing of light sandy soil, bringing it well up round the stems. In a short time fresh roots are emitted freely from the base of each; these are then severed from the old plants, and placed singly in 3-inch pots, using a compost of two parts good fibry loam, one of leaf soil, one of well decayed cow manure, and one of silver sand. They are placed in a cold frame, and kept close till the roots take possession of the fresh soil; air is then admitted, and gradually increased as the plants make progress. When well established they are shifted into 5-inch pots, and given the same treatment as before. For the final shift 7-inch pots are employed, and a little crushed charcoal added to the compost. Water must be given judiciously, as an over-supply is fatal to the well-being of the plants. During the month of September the plants are removed to their winter quarters—a low span-roofed house, in which a night temperature of 50° is maintained, and assigned a position close to the glass. In a week or two they commence flowering, and continue to produce spikes of flowers in great abundance till the end of the following February. Whilst flowering a chink for air is left open constantly, and the temperature kept steady by the aid of fire heat.—W. P. S.

THE HORTUS SICCUS, OR HERBARIUM.

NEXT to the pleasure to be derived from growing plants is that which is to be obtained from the collection and preservation of plants for, and in the Hortus Siccus—*anglice*, dry garden or herbarium. As an adjunct or supplementary pursuit to that of gardening it is most useful, for it acts as an incentive to the study of botany, without a knowledge of which we cannot fully comprehend the classification, habit, and uses of plants. From this point of view it is invaluable to us, for it enables us to turn our country rambles to good account in gathering and storing a collection. This is not only desirable from a botanical point of view, but also as forming in all probability a string of reminiscences of places we know and visited in times that are ever being pressed more remotely into the shadow of the past.

Plants intended for the herbarium should be gathered in flower, and

when small. They should be taken with the root. The plants in this state are placed between leaves of paper prepared for the purpose, and between two boards, or under one, from which they are not removed until they have become perfectly flat. When dry change the paper. Some plants, such as Orchids and bulbs, will sometimes vegetate for months in the herbarium after they have been placed there. If plunged in boiling water for a minute, and immediately afterwards placed between paper, their drying will be more rapid. If the plants are unknown or new, indicate their popular names, the altitude at which they were procured, and their habit, also their height, as well as their odour.

In order to be prepared for collecting, provide some sheets of paper of a suitable size (16 inches by 12 is a good size) and several boards of the same proportion. These should be formed of two thin boards glued together, the grain of the one transverse to the other. These may be connected together by means of straps, so as to communicate considerable pressure. A large book of blotting paper between two other similar boards will complete this temporary herbarium.

Insects are the bane of all collections, also of the herbarium, and it requires incessant care in order to preserve the plants and enable them to bear exposure to the air. The following is a good wash—namely, corrosive sublimate two drachms, spirits of wine one pint, in which dissolve a small piece of camphor. This wash should be lightly applied, but so that all the raphides of the flowers and the fleshy parts of the plant are saturated with it.

Beautiful specimens are prepared by an apparatus to which the name of M. Le Coq, Professor of Natural History at Clermont Ferrand, has been given. This apparatus consists of two open covers, made of strong iron wire network, having an iron frame round them, in which the plants are placed between thin blotting paper. After they have been kept under pressure for a few hours the covers are compressed by means of straps, and the open network of the frames allows the moisture to escape freely, while the plants are gradually dried.—C. W. M.

(To be continued.)

A WELL-KEPT GARDEN.

A VISIT to a well-kept garden is both interesting and instructive, and having recently paid a visit to the gardens of Major the Hon. H. C. Legge, Fulmer, Slough, perhaps a brief description of the plants grown there may be acceptable to the young readers of your Journal.

Mr. Mowbray, the head gardener, is well known as a first-class cultivator of Cyclamen, Freesias, Primulas, and Calceolarias; not that the other departments are neglected at the expense of these, as both the fruit and plant houses testify to the good treatment bestowed upon their occupants.

At present the Primulas and Cyclamen, arranged in two span-roofed houses, are making a splendid show, these alone being well worth a visit, and show what can be accomplished by cultural skill. Since my visit Mr. Mowbray has secured the first prize for his Primulas at the Royal Botanic Show. The plants were grown as cool and hardy as possible, all coddling being especially avoided. The healthy and vigorous Calceolarias promise a fine show of bloom in their season. The Freesias, which secured a bronze medal from the Royal Horticultural Society, were over, but it was easy to see what a grand display they had made.

The stove contains fine plants of Crotons, Asparagus plumosus, Dracenas, Caladiums, Anthuriums, Alocasias, and Gardenias, the latter carrying large blooms and very clean foliage. A walk through the fruit houses brought the visit to an end, and I felt well repaid for the journey.—YOUNG PONICA.

PRIMULA CULTURE.

A FEW remarks concerning Primula culture may be acceptable, and as I have in charge a very fine lot of plants it may be useful to other young men, and perhaps a few who are not very young, to know how they were grown. The seeds were sown the first week in March very thinly in large pans. Encouraged by gentle bottom heat plants soon made their appearance. When the first rough leaf was formed they were placed near the glass, and exposed as much as possible to the sun—and it is surprising the amount of direct sunshine they will endure with impunity when accustomed to it from their earliest stages. This exposure results in short, stout petioles, giving the plants a stocky appearance.

The second week in May they were potted singly in large 60's, again placed near the glass, and shaded the first week, then exposed as previously mentioned. The first week in June they were placed in a cold frame attached to the west side of a span-roof greenhouse, and for the first ten days were kept rather close, then gradually hardened, only a light shading of muslin being employed for about two hours during the hottest part of the day—the order was to shade as little as possible. The second week in July they were potted in the flowering size—namely 32's—soon established themselves, and by the fourth week in September they were fine sturdy plants. At this time they were placed in the greenhouse, just sufficient fire heat being afforded to expel superfluous moisture. This treatment soon induced the flower spikes to develop, and for a long time the plants bloomed profusely.

The compost for the intermediate and final pottings was made up of equal parts loam, leaf mould, and old mortar rubbish, with a liberal addition of silver sand. This makes a porous mixture which the Primula apparently delights in.—A YORKSHIREMAN.

[If paper is not very scarce and dear in Yorkshire perhaps a little more may be found another time, so as to allow about twice the space for revision.]

FORCING LILAC.

I SHOULD like to call attention to the Lilac, that delicious pink-and-white flowered shrub which produces such a charming effect in the conservatory early in the year, and affords delightful sprays for cutting. Forcing Lilac is very easy to manage. A number of plants, taken up carefully, and well potted, about Christmas, will if placed in a vinery previously started and duly syringed, commence flowering in a month or little more. After their beauty is over, they should be gradually prepared for planting in the open ground, not be forced again for two years.—IMPROVER.

[This correspondent asks us to "excuse his writing, as it has been neglected of late." Admitted "neglect" is inexcusable. We insert a portion of his communication for the purpose of saying to all whom the remarks may concern, that negligent young men who plead for excuses cannot hope to obtain good positions in the gardening world. This "Improver" has need to improve very considerably, and if he is a man of mettle he will at once commence and pursue diligently a course of self-education.]



FRUIT FORCING.

Cherry House.—Directly the stoning is complete the fruit commences colouring and takes its swelling for ripening. The temperature may now be raised, but it must not exceed 55° to 60° at night, and 65° by day from artificial means, with a little ventilation constantly, increasing it at 70°, and, subject to the "crack" of air at the top of the house, close at that temperature. The heat, however, must not be allowed to exceed that degree in the early part of the day without full ventilation, for ripening Cherries are very liable to crack in a close moist atmosphere. From the commencement of colouring until the trees are cleared of their fruits syringing must cease, or the fruit will split and be spoiled, but a good moisture should be maintained in the house by keeping the surface of the border moistened as it becomes dry, or if the trees are in pots sprinkling the floor two or three times a day, avoiding, however, a stagnant atmosphere. Aphides must be kept under by an insecticide, but fumigation only can be had recourse to after the fruit commences ripening. The border must not lack moisture, and liquid manure should be liberally accorded to trees in pots.

Cucumbers.—Shading may be necessary in the middle of the day for an hour or two in bright weather to prevent flagging, but with the plants healthy and the roots abundant very little will be necessary, always provided they are properly supplied with water and nutrition, and free from eelworm. In case the plants flag without apparent cause examine the roots, and if found at all knotty or swollen in parts apply a solution of soluble phenyle, 1 gill (quarter pint) to 3 gallons of water, giving a similar amount as in an ordinary watering. This will check the eelworm and prove beneficial to the plants as manure. Water plants in houses abundantly, but only when required, keeping plenty of moisture in the atmosphere all day by frequent damping, syringing the plants both ways about 3.30 P.M., closing the house at the same time. To secure tender crisp fruit maintain a night temperature of 65° to 70°, 70° to 75° by day, advancing to 85° or 90° from sun heat, and an increase to 100° will not do any harm after closing. To secure straight fruit employ glass tubes.

In watering plants in pits and frames do it early in the afternoon, so as to get the foliage dry before nightfall. Maintain a good bottom heat by linings renewed as required. Ventilate early and moderately, husbanding the sun heat by early closing, and employ a thick night covering over the lights. Avoid overcrowding, keeping the shoots stopped to one joint beyond the fruit, and remove bad leaves as they appear. Keep young plants near the glass, sow seed for raising plants to occupy frames after forced vegetables or bedding plants are removed. Wireworms are sometimes troublesome, coming in with the turf, and as its grass is dead they are usually ravenous. They cannot resist baits of Carrot, Turnip, Mangold Wurtzel, or Potato cut into thick slices and inserted in the soil a couple of inches, examining the baits every morning. Millipedes and woodlice are equally fond of these vegetables, though woodlice prefer boiled Potato wrapped in a little hay, examining them daily.

Figs.—*Early Forced Trees in Pots.*—Ventilation must be increased when the fruit shows signs of ripening, and exposure to the sun greatly enhances the flavour. Many fruits, however, cannot have full exposure to the sun, but judicious pinching, thinning, and tying the branches admit of their receiving a fair amount, and light, with a free circulation of air and freedom from water, is absolutely essential to well-flavoured Figs. This dryness of the atmosphere greatly encourages the Fig tree's worst enemy—red spider. It does not make much progress under good syringing, but when the atmospheric moisture is reduced its spread is something remarkable, therefore no effort should be spared to have the foliage clean up to ripening time.

Brown scale also spreads rapidly over the young shoots, and extends to the leaves and fruits. There is nothing like contesting the advance of these pests on their first appearance. A little soapy water applied with a sponge to the first specks of red spider on the under side of the leaves,

and the young scale dislocated by a brush dipped in a softsoap solution, 1 oz. to a quart of water, saves much after trouble, but care must be taken not to injure the fruit, which is extremely tender. Supplies of water at the roots are needed through all stages, yet less when the fruit is ripening than during its swelling. Figs for home use should be ripe when taken from the trees, those for sending away must be gathered before they are fully ripe. Increase the ventilation at 70°, affording air constantly during the period of ripening. Day temperature 80° to 85° from sun heat, and night temperature 60° to 65°.

Succession Houses.—Trees in inside borders will need abundant supplies of water, and those in narrow borders and carrying heavy crops of fruit require liquid manure, with rich surface dressings. Attend frequently to tying-in, thinning, and stopping the shoots at about the fifth leaf of such as are required to form spurs, and avoid overcrowding the shoots. Maintain a night temperature, after the leaves become full sized, of 60° to 65°, and 70° by day, allowing a rise to 80° or 85° from sun heat, ventilating from 70°, closing at 80°, so as to rise 5° or 10° afterwards.

Late Houses.—The trees in these require syringing on fine days sufficiently early to allow of their becoming dry before night. Ventilate in the early part of the day. Strive to secure solid growths, and close early in the afternoon with plenty of atmospheric moisture where there is means of excluding frost, but in unheated houses afford moderate moisture only.

Melons.—Secure every ray of light to plants swelling their fruits by keeping the glass clean, and supply water liberally to the roots, or liquid manure, providing plenty of atmospheric moisture. Overcropping not only renders the fruit small but prejudices the quality, which is proportionate to the amount of solidified matter and its transformation in ripening. This is best effected by a somewhat dry and warm atmosphere, with diminished supplies of water at the roots, but there must not be any deficiency until the fruit commences ripening, and not then if the plants are to continue for a second crop. A little air constantly will keep the fruit steadily ripening. During the setting of the fruits a drier condition of the atmosphere and soil is advisable, but the soil must not become so dry as to cause the foliage to flag. Attend daily to setting the flowers, stopping the growths as the flowers are fertilised. Keep the temperature at 65° to 70° at night, 70° to 75° by day artificially, and between 80° and 90° with sun heat, ventilating carefully at all times, avoiding sudden fluctuations in the moisture and of temperature.

Plants in pits and frames are showing fruit, and unless they are sufficiently numerous to insure two to four fruits on a plant setting about the same time, it is advisable to remove the first flowers, as with more shoots there will be no difficulty in securing five or six female blossoms of simultaneous growth on each plant, which should be fertilised. Maintain good linings, bottom heat, and a dry condition of the atmosphere when the fruit is setting. After the fruits are set let them be raised on a flower pot, with a slate intervening, above the foliage. Earth up the plants as they advance in growth, having this effected before the fruit is set, as it cannot well be attended to afterwards in frames. Make new beds and put out plants, sowing, potting, and otherwise preparing for planting successional beds.

Pines.—Young plants in course of preparation for fruiting often become soft, drawn, and weakly in growth through a close, moist atmosphere and high temperature. This should be carefully avoided by dispensing with fire heat as much as possible, relying for robust growth and a sturdy habit on sun heat. Maintain the temperature at 60° to 65° at night, and 70° to 75° by day artificially. This is sufficient to sustain the plants in steady progress. Commence ventilating at 75°, gradually increasing it with the temperature to 85°, keeping it through the day at 85°, 90°, or 95° from sun heat, with abundance of air. Close at 85°, but not so as to greatly raise the temperature, for however beneficial this may be to plants swelling their fruits it causes attenuated growth in young plants. Sprinkle the paths and walls at closing time, and syringe the plants lightly about twice a week. Examine each plant before water is given, and when needed supply sufficient to moisten the soil down to the drainage.

Plants swelling their fruit are assisted by judicious applications of liquid manure, to be withheld when ripening commences. Stake the fruit to keep it in an erect position. When the suckers of fruiting plants become large enough screw out the hearts of those not required for stock; one, or at the most two, should be retained on a plant. The temperature should range in fruiting houses from 70° to 75° at night, and 80° to 95° by day. As the fruit ripens the plants may be removed to a cooler house, and the fruit will then keep sound for a lengthened period, longer, indeed, at this time of year than any other.

THE KITCHEN GARDEN.

Asparagus.—Where the beds were not kept saturated and cold by a heavy covering of manure, shoots have started early and strongly. Hovering straw or strawy litter over these early shoots saves them from spring frosts, which have already done much harm to those unprotected. Not having been dressed with manure a heavy surfacing of either manure or common salt, using enough to whiten the surface, may well be applied after just loosening the ground with a fork. This will act as a manure to the Asparagus and destroy the weeds. Those beds heavily mulched during the winter should have all the more flaky portions of the manure removed, a surfacing of short manure doing good in the direction of keeping down weeds and conserving moisture during the summer. If clayey soil were mulched during the winter and recently cleared of the manure, it will have already run together badly after the

rains, and dressing with salt only aggravates the evil. In all probability it is already rich enough, and in any case a dressing of fish manure, guano, or soot is preferable to salt. Salt to be applied as a last resort against weeds.

Planting Asparagus.—After top growth has commenced is the best time to plant Asparagus roots. The more forward shoots may be 1 foot long when the plants are moved, and fewer failures take place than is the case when transplanting is done before top and root growth has commenced. Avoid any undue exposure of the roots to cold winds and sunshine, the planting being best done in dull showery weather, though not if the ground is in a wet state. A deep, moderately rich, free working soil, and well-drained site suits Asparagus, and under these conditions no extra expense need be incurred in making special preparations. Should the site be somewhat cold and none too well drained, and the soil of a clayey nature, then a free addition of decayed manure, leaf soil, "burn bake" sand, and fine mortar rubbish should be made to the soil, and raised beds also be formed. The larger beds may be from 4 feet to 5 feet wide for three rows of plants, or only 3 feet wide for two rows of plants, with 1 foot or wider alleys between them. Dispose the outer rows of plants not less than 9 inches from the edges, and in all cases from 15 inches to 18 inches apart in the rows, allowing the greater distance on strong ground. Open wide holes with slightly raised centres for each plant, spreading the roots out naturally, and covering with 3 inches of good fine soil. Two-year and three-year-old plants are supplied by nurserymen, but in neither case ought any shoots to be cut the first year, and few, if any, during the second season after planting. Cutting from young plants weakens them seriously, and they are slow in attaining a really serviceable size accordingly. No salt should be applied to newly planted Asparagus, as there is a risk of injury to the broken roots.

Sowing Asparagus Seed.—Now is a good time to sow Asparagus seed. The plants may be either raised where they are to remain, the beds being prepared as advised for plants, or they can be raised on the level, and transplanted in the following season. Open shallow drills, and sow thinly. Nearly every seed will germinate, and if sown thickly much early thinning-out of seedlings will be necessary.

Beet.—It is yet early to sow the main crop of Beet, especially where the roots are liable to become coarse. For an early supply sow a long row, or several short rows, of the Turnip-rooted variety in a warm position. Sow thinly in drills 1 inch deep.

Carrots—For the successional supplies sow a good stump-rooted or Horn variety on a warm border in shallow drills 9 inches apart. The roots obtained in this way ought to be ready for use by the time the crops in frames are exhausted. The main crop may also be sown during the first fortnight in April. Carrots should have a freely worked soil, sandy from choice, requiring no manure if plenty were dug-in for preceding crop of a surface-rooting nature. Nantes Horn and Intermediate keep fairly well, but are not available so late in the season as Altringham and Long Surrey. For the first named the drills may be 9 inches apart, 12 inches sufficing for the rest. Open shallow drills, and lightly dust wood ashes along these as a preventive of maggot. If the seed cling together well mix it with sand, or otherwise it will not be possible to distribute it regularly and thinly.

Chicory, Salsafy, and Scorzonera.—Ground previously occupied by any member of the Brassica family, for which manure was freely dug in, or even by Potatoes, only requires to be deeply dug and got into a finely divided state for either of these three crops. What are desired in the case of Salsafy and Scorzonera are long, straight, quickly grown roots, but if they come into contact with manure forking is liable to take place. Should it be thought advisable, therefore, to apply solid manure let it be dug in deeply. Draw shallow drills 12 inches apart, and avoid thick sowing, especially in the case of the comparatively small seeded Chicory.

Turnips.—To be good these must grow quickly. Most failures occur when hot and dry sites for the rows are chosen. No better position than the freely manured clear spaces between young fruit trees or bushes can be found for Turnips. Sow a pinch of Early Milan, in order that there should be no break in the supply; but Snowball and Veitch's Red Globe, if slower in "bulbing," are by far the best in point of quality. Sow thinly in shallow drills 15 inches apart. In showery weather the seed germinates quickly, and directly the seedlings push through the soil dust them over with soot and lime as a preventive of attack by either birds or flea. Those more advanced to be similarly treated occasionally, and also be lightly thinned out where crowded.

PLANT HOUSES.

Solanums.—Plants that were cut hard back and have broken freely should have half the soil removed from the roots and be placed again in the same size pots. For the present grow them in a vinery at work, and pinch any shoots that are taking the lead. Watch for aphides and destroy them at once if they make their appearance. These plants grow well in loam, sand, and one-seventh of decayed manure.

Primula obconica.—Plants intended to produce seed should be placed where they can enjoy abundance of air when the weather is favourable. Young plants in thumb pots ought to be grown on a moist base where they can be shaded. When exposed to bright sunshine the foliage assumes a sickly hue and the plants become a prey to red spider.

Chrysanthemums.—Early flowering kinds should, if room can be found for them, be placed in the pots in which they are to flower. They must be properly hardened before potting, and then placed carefully

outside where they can be sheltered from rough winds and frost. Plants that have been recently rooted, and are well established in small pots, should be placed into 5-inch without delay. These plants are often run up weakly by keeping them in a close confined atmosphere in their early stages. Cuttings may still be inserted for providing plants for decorative purposes.

Francoas.—These are most useful for furnishing in 5 and 6-inch pots, and for these sizes it is a good plan to raise the plants from seed annually. The smallest plants from last year's seedlings may be potted for another year. The remainder may be divided into two sizes, and brought into flower at different times. If the largest are placed in a temperature of 45° to 50° they will soon produce flower spikes, while the others should be kept cool. Seed may be sown at the present time if this has not already been done.

Carnation Miss Joliffe.—If cuttings of these have been inserted together in pots or pans, pot them singly directly they are rooted; 2½-inch pots will be large enough. As soon as they are established gradually harden the plants to cool treatment. Carnations are soon spoiled if kept in heat. Cuttings of these and tree kinds may still be rooted. Strong plants for flowering under glass should be finally potted.

Amaryllis.—As plants go out of flower place them in a light house, not too warm, where air can be afforded daily to insure sturdy foliage. Growth must be well developed, well ripened, and the plants thoroughly rested, then they will be certain to flower profusely. These plants are so easily raised from seed that if a few good varieties are obtained a stock of seedlings may soon be had, many of which will be equal to named kinds.

Double Primulas.—Plants that have been kept somewhat dry may have the lower leaves removed and the stems covered with light soil. If kept moist after this they will soon emit roots near the collar, when each portion may be taken off and potted. It is a mistake to place the plants in brisk heat to hasten the process of rooting, for this induces damping.

Salvia gesneræflora.—This is a very showy plant for this period of the year; cuttings may still be rooted. If large plants are needed shorten back those which have flowered in 6 or 7-inch pots, and place them in 10-inch, or an even larger size, when they will make specimens 5 or 6 feet high, and fully 3 feet through, almost perfect pyramids, during the season.

THE BEE-KEEPER.

BEST HIVES FOR WINTERING.

In an apiary where there are numerous stocks of bees in hives of various patterns, some of which are single-walled, others double-cased with an air space at the sides, some again packed with chaff or cork dust, the bee-keeper has an opportunity to ascertain which is the best hive for wintering purposes. It may appear strange to those who have not experimented on the above lines to be now told that there is really little difference, taking one season with another, between the different hives above mentioned.

One spring a double-cased hive placed in a south aspect may be found on examination to be extra strong in bees, and otherwise in good condition. The following season a colony wintered in a single-walled hive having a west aspect will be found to be superior to all others. At the present time the strongest stock in my apiary has been wintered in a double-cased hive having an open air space round the sides, and is facing due east.

This is doubtless the experience of other bee-keepers who have paid close attention to their bees. Why such is the case it is difficult to say, for according to theory those bees having a southern aspect, and also having the advantage of a warm corner, should invariably be the best. But that such is not the case I have proved times out of number. Although different hives have been of equal strength in bees, which have been requeened on the same date, the queens being reared from brood taken from a prolific queen, and the colonies afterwards fed up for winter with the same weight of syrup to each, when examined six months afterwards some stocks will be found to have many more bees, and be in a much better condition than the others.

I am inclined to think the cause of this is

LATE BREEDING IN AUTUMN.

If bees have an extra supply of stores in the autumn, and the weather is fine, some queens will continue laying until the end of September or even later. The bees hatched at that season are the workers of early spring, as they will not die off like the old worn out bees.

But should a queen continue laying until late in the autumn, and stores run short, late breeding will not be a success. The young bees will succumb on the first approach of severe weather, and if they should by chance survive the winter they will be found in an unsatisfactory condition the following spring.

Other colonies to which a young queen had been introduced may become weak, owing to the fact that there are no young bees to take the place of the old worn out bees, as very few of the workers hatched at midsummer will be found alive at early spring. Some queens stop laying much earlier than others, and to this fact (all other things being equal) more than any other, I ascribe so much difference in the various stocks at this season.

It is not advisable to encourage the queen to continue laying after the middle of September, and care should always be taken to feed them up for winter (which operation I always carry out as soon after the honey flow is over as possible). Examine all colonies a few weeks afterwards to see that they are provided with sufficient stores to tide over the winter, and any that are short through the above causes should be at once supplied with the necessary stores. This has more to do with the successful wintering of bees than many bee-keepers suppose, even more than any special hive, or the position in which it is placed. This, and having all hives thoroughly waterproof, are the chief factors in connection with the successful wintering of bees.

STRAW SKEPS.

Bees invariably winter well in the old fashioned straw skep, but what has been said about the moveable frame hive is equally true about bees in skeps. The late Mr. Pettigrew was a firm believer in the straw skep, and recommended bee-keepers to use "nothing but straw hives for bees. Hives made of wood at certain seasons of the year condense the moisture arising from the bees, and this condensed moisture rots the combs." Were he living at the present day he would doubtless have altered his opinion of wooden hives, as they are now more common throughout the country than straw skeps, and a much greater weight of honey is obtained annually in consequence. It is better to allow the bees in straw skeps to swarm, as by this means they will be kept in a healthier condition than if supered year after year without the combs being renewed.

There has been a great loss of bees during the past winter among cottagers who keep their bees in straw skeps. It cannot be owing to the severity of the winter, but through the loss of queens at a critical period, when it was impossible to rear others. Owing to the peculiar season few swarms were obtained last year from skeps. The queens in many cases that have come under my notice were three years old, ample stores of honey were in the hives, but they succumbed from old age.

With the moveable frame hive this could have been prevented (as it might have been in skeps), but so few bee-keepers who are contented to keep bees in skeps ever take the trouble to examine them.—AN ENGLISH BEE-KEEPER.

LARGE HIVES.

"AN ENGLISH BEE-KEEPER" (page 281) says, "I agree with 'G. H.' (page 240) when he states that large hives need less attention as to feeding, but he does not say why this is so." I hasten to tell "A. E. B." that I have found hives having capacity for the full laying powers of the queen, and stores for carrying on the work of the hive. I refer to hives having nearly 4000 cubic inches. Such hives keep abreast of the time, and the queen laying from 3000 to 4000 eggs daily the bees have not room for the storage of honey to prevent them entering the supers, as "A. E. B." supposes; but on the contrary, there are more bees to work in the supers. Again, "A. E. B." says, If the hive is larger than is necessary by the time this takes place the honey flow will be quite over, and little surplus will be stored in the supers.

"It must have been a hive similar to the above that 'G. H.' had in mind when he stated in a previous issue that if we want to take as much surplus as 250 lbs and leave 100 for stores we must go in for larger hives." I found I made a slight mistake here. I should have said, "And yet leave 100 lbs. untouched," instead of 100 lbs. for stores. I may honestly tell "A. E. B." it was a hive somewhat like this that my mind was on, and is still on, but not too large, as "A. E. B." supposes. It seems to please my friend to remind me of this grand hive, 250 lbs. taken, 100 lbs. left untouched to be taken when required. I ask my friend if he has done better than this, if he has had 350 lbs. from a hive with ten standard frames without any adding from other stocks? He will perhaps tell us in his next notes. Yet this 350 lbs. is an established fact, and if "A. E. B." will turn back to the Journal of 1894, May 10th (page 374), it will be found recorded.

LARGE HIVES AND SUPERS.

I fail to see the logic of "A. E. B." when he says that bees in large hives will not enter the supers till the honey flow is nearly over. Bees covering twelve frames, 20 by 8½ inches, and it can be done before the honey flow; they will enter the supers quite as soon—yes, in some cases sooner than those on ten standard frames. The reason of this is not far to seek. In the former more bees are hatched than in the latter, hence stronger hives. We find no difficulty in this locality in getting our bees into the supers of large hives; 100 lbs. have been taken here at one time from a hive with twelve 20-inch frames, and more left in the hive.

Moreover, these hives are no new creation; I think they would be in use before the hives that take ten standard frames. If "A. E. B." will turn back again to June 7th, 1894 (page 462), he will find Mr. Cowie in Scotland with hives with fifteen frames, 20 inches by 8½ inches inside measure, and two tiers of supers filled. If this can be done by the 7th of June, surely bees in large hives will enter the super before the honey flow closes. Hives like the above at the same date would gladden the heart of "G. H.," and no doubt the heart of "A. E. B." too.

EARLY DRONES.

In a previous issue I spoke of a hive containing twelve frames, 18 by 8½ inches inside measure, covering nine frames, with drones in the hive. What "A. E. B." says about early drones in hives holds good in some cases, but not in the one in question. The hive has a vigorous queen, plenty of hatching brood, and in every way prosperous. I should think by the end of April or the first week in May will crowd the hive.—GEORGE HOWDENSHERE.



All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," S. Rose Hill Road, Wandsworth, London, S.W. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

Brisbane Lily (W. G. W.).—Eurycles Cunninghami is a native of Queensland, and a white-flowered bulbous plant, growing about 1 foot in height. It requires a warm greenhouse or cool stove. The bulbs may be grown singly or three in a pot, in a compost of two parts good turfy loam, one part peat, and one part decayed leaf soil or cow manure, adding one-sixth of sharp silver sand. The plants should be grown in a light position, watering carefully at first, but freely when growing. After growth is completed water should be withheld for a few weeks, so that the bulbs may ripen and rest. The withholding of water, however, must be partial, not allowing the foliage to suddenly flag and go off, as flowering depends on the maturity of the growth. It is an excellent practice to place the plants in a frame or pit from the end of June until the middle of September. When established the less frequently the plants are repotted the better, provided they remain healthy. When a shift is necessary all the living roots should be carefully preserved, and any dead ones cut away. After the plants have once started, their growth cannot well be too rapid, nor the supply of food too liberal. Small bulbs will under proper culture make good flowering plants in the course of two or three years. The main points are to afford to them plenty of light, with abundant nourishment when making and perfecting growth, careful ripening, and then rest.

Small Insects Eating off Seedling Begonias (J. G.).—The minute creatures on the stamp margin paper are a species of spring-tail (Thysanura), but not a "jumper" named Lipura fimetaria, Linn., which browses upon various tender vegetables, and is common amongst leaf mould and other decaying matter. The remedy you have used—a little weak Fir-tree oil lukewarm—is very effective against them, and acts deterrently of their attacks. The flies have probably issued from pupæ in the soil; indeed, you have sent a pupa case from which one of such flies has emerged recently. It is the Cabbage fly, Anthomyia brassicae, Bouché, which does much harm to cruciferous plants at the roots by its larvæ or maggots, as you are no doubt well aware. The flies do no harm whatever only by being the parents of the maggots, which are not likely to be found at this time of year, even if they at any time attack Begonias. You seem to have overlooked the mycelial threads of a fungus when examining the soil with a "glass." They, however, are present along with the "small insects," and it is Botrytis vulgaris, which often sweeps off whole pot or pans of seedlings, being developed from a sclerotium, which you have also been kind enough to send, and appear to have overlooked. For this there is nothing better than sterilisation of the soil before sowing the seed by soaking with boiling water, allowing the soil to become in suitable condition for the seed before sowing.

Conservatory at Grove Park (T. Street).—A letter posted to the address you gave has been returned by the postal authorities marked "not known." Can you offer any explanation?

Calceolaria Requirements (S. E. H.).—The shrubby or bedding Calceolarias require an open situation, as they must have plenty of light to insure a sturdy and free-flowering habit. The site, however, must not be hot and dry, as the plants delight in moisture, which of course can be secured by mulching with short unobjectionable material, or cocoa-nut fibre refuse, and supplying water in droughty weather, but not over the flowers, as these are soon injured by wet. Shelter is also necessary, the force of winds doing injury to the somewhat brittle plants.

Tomato Leaf-ribs Rusted (Tomatoes).—Beyond the "rust" on the midribs we failed to find anything amiss with the leaves. We examined them in every possible way, but did not discover any fungus or other body likely to cause the rust, which is purely mineral matter, or extravasated sap oxidised. Thus the cells have been disorganised or ruptured, and the rust appears, followed by the leaves curling as growth has ceased at that part. What is the cause of extravasation remains unexplained, but it usually arises through a sudden check to growth, followed by a rush of sap and exudation of matter. It is common on Potatoes in fields, and not much less so on Tomatoes under glass in certain seasons; seldom being attended by any serious consequences to the plants, though disfiguring them. Indeed, it often means great fertility and high-class produce. The white matter appears to be lime, which requires for its utilisation a corresponding amount of potash; therefore, we should employ a dressing of bone superphosphate, three parts or pounds, nitrate of potash (crushed) two parts or pounds, and kainit one part or pound, mixed, using 2 to 4 czs. per square yard, watering in moderately, and employing at intervals of about three weeks. We have found this useful under similar circumstances, the thing being not to apply it excessively so as to injure the roots or induce too luxuriant growth. It is a good all-round plant food, and has a tendency to fortify the plant against its fungoid enemies.

Epiphyllum Failing (M. F.).—It is a great pleasure to us to assist amateurs as well as gardeners whenever we can do so, and no one need hesitate to ask for information on any gardening subject at any time. When Epiphyllums get old they are prone to fail by canker near the soil, especially when raised from cuttings, but less so when established by grafting on the Pereskia stock. It may be your old plant is irrecoverable. If the stem is cankered the supply of nutriment would be arrested, shrivelling of the growths following as a natural consequence. They would shrivel also if the soil was by accident allowed to become either too dry, and long remain so, or too wet, as in one case the roots would perish by shrivelling and the other by decaying. Carefully examine the soil, and if it is very dry and shrinking from the pot sink this over the rim in a pail of warm water for three hours. If, on the other hand, the soil is very wet and pasty, it is probably sour. In this case turn the plant out of the pot, and with a pointed stick remove as much of the sour soil as will liberate many of the roots; then place in a smaller, clean, well-drained pot, using a mixture of six parts loam and one part each of powdered charcoal and old dry mortar. Protect the drainage with moss or fibre, and place in sufficient soil, which, when pressed down rather firmly, but not made hard, will raise the collar of the plant on a level with the rim of the pot; then work in the fresh compost among the roots, adding a little at a time, so that they may be evenly distributed through it, pressing down as before, and making level half an inch or more below the top of the pot. The soil must not be either decidedly wet or dry when used, but moist enough for compression. Pick out some of the old soil from the stem, and place round it a little crushed mortar rubbish and charcoal. Do not stand the plant in the sun nor give water at once, but prevent evaporation from the stems by spraying them occasionally through a vapourising appliance, placing the end in a phial and the blow-tube in the mouth. In three or four days time give enough tepid water to pass quite to the drainage, then wait till the soil crumbles when rubbed before giving more in the same way. Mere surface sprinklings, giving "just a little" water frequently, are worse than delusive—namely, dangerous in conducing to the canker of the stems. You are at a disadvantage in not having proper convenience for Epiphyllums. If you can induce the sickly plant to make fresh roots and keep them growing, through good judgment in watering, the stems will freshen; if you cannot obtain active roots we fear the plant must die. We have done all we can to help you to save it. If it should collapse you must try and derive consolation in the same way as a gentleman once did who had two cherished plants (not Epiphyllums). They were said to be the only two in Europe, and were valued at £200 each. They were taken to a continental show, at which one of them suddenly died. On our sympathising with the owner on the great loss incurred by the fatality, he took the matter philosophically and said, "I am sorry to lose the plant, of course, very sorry, but it simply doubles the value of the other; its price was £200 yesterday, it is £400 to-day." The gentleman is living, and will not forget the circumstance. Returning to the Epiphyllums, when summer comes to stay, not before, if the sickly plant recover, stand both in the open close to the south side of a wall or building, sinking the pots in others still larger to prevent the sun injuring the roots, also take care that they are not allowed to suffer by lack of water; syringe the plants daily in hot dry weather, gradually reduce the water supply towards the autumn, then place them in a light position, and keep the soil dry rather than wet during the winter months. Frost is fatal to Epiphyllums.

Spiræas Failing (M. R.).—We sympathise with you in your failure, which is rather a prevalent one this season with late plants, and said to have been caused by blight. We, however, have examined several specimens, and not found any animal or vegetable organism on them or in their tissues. A large grower attributes it to the roots being lifted too early in the autumn, the crowns not being sufficiently matured, but another cultivator found the earliest, second, and third batches of forced plants do well, whilst the fourth batch, all of the stock, potted at the same time and treated similarly, alone have failed. This makes the subject very tantalising and unsatisfactory, yet we still consider the plants have been brought forward too rapidly, and that has caused the flowering panicles to become "deaf."

Insect on Plants (S. E. H.).—The insects belong to the order Hemiptera, sub-order Heteroptera, and tribe Lygeidæ, which are characterised by having a small scutellum, four-jointed antennæ, and rather elongated bodies. The species you forwarded is the "Soldier and Sailor," *Astemma aptera*. It is red and black in colour (sometimes slatey grey, with red patches), and found during summer running about in fields and gardens, especially among stones and rubbish. They also are found on plants, and probably visit them to suck the juices, the insect having a somewhat long proboscis withdrawn under the body when not in use. The injury is done by the insect piercing the plant, and causing the sap to flow out. We have not, however, noticed that it does much harm to plants. Syringing the Roses with an insecticide would make the foliage and shoots distasteful to them, and do good in respect of other insects.

Gloriosa superba (W., Reading).—This very ornamental liliaceous plant flowers towards the end of summer, its deep orange and red flowers being very effective. It grows about 6 feet in height, and requires supporting, the leaves having tendril-like apices. The flower petals turn upwards, narrow, deeply undulate, and crispate. Good drainage is always essential, and an open soil, composed of turfy loam and fibrous peat in about equal proportions, with a free admixture of sharp silver sand. The bulbs should be carefully repotted in the early spring, preferably in February, and started in a temperature of about 70°; and, if convenient, gentle bottom heat. Water must be given carefully at first, and during the summer plenty of heat and moisture are necessary, yet always being careful not to overwater. A greenhouse is too cold for the plants. As the growth ripens water should be gradually withheld. During winter the soil must be kept quite dry, and the pots laid on their sides in a dry place. The plant is a native of tropical Asia and Africa, cool treatment, therefore, in the resting season must be specially avoided; indeed, the season of growth and complete rest in a warm place are important considerations in its culture. It requires a stove or, better, a Cucumber or Melon house, where ventilation is practised—not the modern, stew-pan, system of Cucumber growing. The plant is somewhat slow growing, and impatient of root disturbance on account of the brittleness of the bulb, yet should be potted once a year, offsets being taken off very carefully when starting the bulbs, as they are easily injured at other times.

Christmas Roses (A. L. K.).—We have raised many seedlings of *Helleborus niger* by sowing the seeds as soon as ripe and later. When sown within a day or two of the time of gathering many of them have germinated the same season, but those sown later not till the following year. We sow in earthenware pans of sandy loam and leaf soil, covering lightly, but completely, with some of the same sifted. A thorough watering is given through a fine-rosed can, and a few hours afterwards the seeds are sown. The pans are closely covered with glass, and plunged to their rims in damp ashes in a frame on the north of a wall. This is for the purpose of securing uniform moisture in the soil, and avoiding the necessity for frequent surface sprinklings. When the seedlings are large enough they are transplanted an inch or two apart in boxes, these being kept in a frame for a time in the same shaded position, and the plants watered as needed, always before the soil becomes decidedly dry. When the plants are fairly growing the sashes are withdrawn, as the plants derive benefit from the night dews, though when quite young are better if sheltered from drenching rains. When they grow and touch each other in the boxes they are planted 1 foot asunder in the open in deeply worked, free, generous soil, choosing a site where the plants are as far as possible shaded from the midday sun. After the end of the second season's growth a few flowers appear. When they become fairly numerous low posts are driven down, and rails attached to them along the sides of the border for the purpose of supporting sashes for keeping the flowers clean. Failing a sufficiency of these we have protected them with canvas during drenching rains. When the plants cover the ground every alternate one is removed, soil and manure being placed between those which remain, and they gradually form large clusters of crowns, and produce masses of flowers. The plants removed are inserted in deep rich soil in open spaces between fruit trees, or where they can be shielded from the scorching sun. The fleshy roots are placed well down, not spread out near the surface, which is covered with manure, alike for enriching purposes and reducing evaporation. Large individual clumps are worthy of protection by hand-lights or cloches when flowering commences. In deep rich soil and partial shade the clumps may remain undisturbed for years. Christmas Roses are grown by the acre between the lines of trees in cultivated fruit plantations in the Thames valley. They are also grown in the open where the ground is rich and deep, also moist in summer. When old plants are divided this is done when flowering ceases. Seedlings may be raised in free soil, and a shaded position in the open. We shall be obliged by occasional notes as you suggest, written on one side of the paper only, for publication.

Hippeastrums (Amateur).—The best evidence as to the efficacy or otherwise of any particular product is that which results from practical experience. It is impossible for *Hippeastrums* to grow satisfactorily and flower freely if the roots are not in a healthy state. The most successful cultivators of these plants grow them in a compost of two-thirds good fibrous loam and one-third of decayed friable cow manure, with a little leaf soil and silver sand, the whole mixed for some weeks prior to use. The bulbs are kept dry through the winter in the pots in which they grew in the summer. Early in the year the old soil is shaken from the bulbs, and any decayed matter removed from them. They are then placed in pots not more than 2 inches wider than the diameter of the bulbs, using the compost named, which is pressed down firmly. The pots are plunged to their rims in old tan or leaf mould, and if in gentle bottom heat all the better. The plunging material prevents the soil drying, and precludes the necessity for watering till the flower stems are 2 or 3 inches high and leaves pushing strongly. Then the supply of water is increased more and more with advancing growth, and the pots are crowded with healthy roots. Plants thus treated are now flowering magnificently. Overwatering before the roots are active and growth free is extremely prejudicial.

Mushroom Spawn (H. T.).—What is commonly called Mushroom "spawn," as represented by silky looking threads, which interlace masses of manure, is really the plant of the fungus *Agaricus campestris*, the Mushroom itself being the fruiting form of the plant, as producing conidia or spores. When these are mature and fall on a medium suitable alike in constituents, moisture, and temperature, they produce white filamentous growths, which spread in all directions that favour their extension till they produce a cobweb-like mass. This is the mycelium (spawn) or plant of the Mushroom. Eventually in a favourable medium the growth thickens and produces tubercles, which develop into Mushrooms. The first growth direct from the spores, which resembles a cottony mass, through the ramifications of the mycelium, is known as "virgin spawn," and is in great demand by makers of "spawn bricks," because of its strength. The bricks impregnated and filled with this virgin spawn are not sold, but retained for propagating purposes—that is, portions of them are inserted in other "bricks" made from manure and loam, shaped in moulds when the mass is sufficiently dry, but not too dry, for the purpose. These impregnated bricks are packed on their edges, but without the faces touching, forming a floor; then others are similarly placed on them in an opposite direction; and so on till the pile is completed. The whole is then covered with sweet fermenting manure of sufficient thickness to maintain a genial warmth of about 70°. The mycelium then spreads, or the "spawn runs," and in a few weeks the bricks are completely permeated. The covering is then gradually removed, and the bricks dried and stored for use or sale. These are called "first removes," or, in other words, the first obtainable after impregnation with virgin spawn, and are the best that can be purchased. If some of these are used for producing others, these are "second removes" (not so strong, but good), and if these are again used for propagation we have "thirds" (less strong), and so on; the further from the spores the weaker the spawn, or plant, and consequently the "fruits" of it, if any—the Mushrooms. It is not so much a question of the hardness or softness of the bricks as the strength of the spawn that invests them with value. Those you had which answered so well were probably "first removes," and as a good price would have to be given for them, a good price would have to be charged; but the spawn would not be "dear" all the same, because of the abundant produce resulting. Very few retail vendors of Mushroom spawn make their own, any more than builders make their own bricks. It is professional work, and cannot well be learned without practical guidance. You may find more on the subject in "Mushrooms for the Million," and see an illustration of the germination of the spores by the eminent artist and fungologist, Mr. Worthington G. Smith.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, at being often difficult to separate them when the paper is damp. (C. H.).—1, Specimen insufficient; 2, *Pteris cretica albo-lineata*; 3, *Lygodium scandens*; 4, *Adiantum assimile*; 5, *A. pubescens*; 6, a poor specimen, possibly *A. macrophyllum*. (H. S.).—The small flower is *Maxillaria picta*; the large flower was dead. (C. P. C.).—1, *Cupressus Lawsoniana erecta viridis*; 2, *C. macrocarpa*; 3, unknown; 4, *Abies Douglasi*. (E. D.).—*Dendrobium fimbriatum oculatum*. (P. P.).—1, *Daphne Mezereum album*; 2, *Primula rosea*; 3, *Saxifraga Boydii*; 4, *Streptosolen Jamesoni*; 5, *Celsia Arcturus*. (S. R. S.).—1, *Athyrium filix-foemina orbiculare*; 2, *Polypodium verrucosum*; 3, *Cibotium princeps*; 4, *Polygala Dalmaisiensis*. (Somerset).—The two Conifers are not synonyms in Veitch's "Coniferae" and other works. 1, *Pinus Bolanderi*; 2, *P. contorta*.

NOTICE TO NURSERYMEN, SEEDSMEN AND FLORISTS.—G. H. Richards requests us to announce that he has removed his offices from Old Shot Tower Wharf to 124, Southwark Street, S.E. (and this is the address for all letters and orders in future), where he has taken a large warehouse for the manufacture and storage of the light goods connected with his horticultural sundries business. The warehouses at Old Shot Tower Wharf (five minutes distant) being retained for the storage of peat, manures, and heavy goods generally.

TRADE CATALOGUES RECEIVED.

M. Bruant, à Poitiers.—*Plants*.
E. Cappe & Son, Au Vésinet, Seine et Oise, France.—*Plants*.
M. Cuthbertson, Rothesay, N.B.—*Seeds and Plants*.
Ch. Molin, 8, Place Bellecour, Lyon.—*Chrysanthemums*.
J. Peed & Sons, West Norwood.—*Dahlias, Carnations, Perennials, Trees and Shrubs*.
J. Veitch & Sons, Ltd., Royal Exotic Nursery, Chelsea.—*Plants*.

COVENT GARDEN MARKET.—APRIL 14TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples, $\frac{1}{2}$ sieve	1	3	to	2	6	Lemons, case	11	0	to 14	0
Filberts and Obs, per 100lb.	0	0	0	0		Plums, $\frac{1}{2}$ sieve	0	0	0	0
Grapes, per lb.	3	0	3	6		St. Michael Pines, each ..	3	0	8	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.	
Asparagus, per 100	0	0	to	0	0	Mustard and Cress, punnet	0	2	to 0	4
Beans, $\frac{1}{2}$ sieve	0	0	0	0		Onions, bushel	3	6	4	0
Beet, Red, dozen	1	0	0	0		Parsley, dozen bunches ..	2	0	4	0
Carrots, bunch	0	3	0	4		Parsnips, dozen	1	0	0	0
Cauliflowers, dozen	2	0	3	0		Potatoes, per owt.	2	0	4	9
Celery, bundle	1	0	0	0		Salsify, bundle	1	0	1	0
Coleworts, dozen bunches	2	0	4	0		Seakale, per basket	1	6	1	0
Cucumbers	0	4	0	8		Scorzonera, bundle	1	6	0	0
Endive, dozen	1	3	1	6		Shallots, per lb	0	3	0	0
Herbs, bunch	0	3	0	0		Spinach, pad	0	0	4	0
Leeks, bunch	0	2	0	0		Sprouts, half sieve	1	6	1	0
Lettuce, dozen	1	3	0	0		Tomatoes, per lb.	0	4	0	9
Mushrooms, per lb.	0	6	0	8		Turnips, bunch	0	3	0	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arbor Vitæ (various) doz.	6	0	to	36	0	Ficus elastica, each	1	0	to 7	0
Arum Lilies, per dozen ..	9	0	18	0	Foliage plants, var. each	1	0	5	0	
Aspidistra, dozen	18	0	36	0	Genista, per dozen	6	0	10	0	
Aspidistra, specimen plant	5	0	10	6	Hyacinths, large, per dozen	6	0	9	0	
Azalea, per dozen	18	0	36	0	Lily of the Valley, 12 pots	9	0	12	0	
Cinerarias, per dozen ..	6	0	9	0	Lycopodiums, dozen	3	0	6	0	
Cyclamen, per dozen ..	8	0	12	0	Marguerite Daisy, dozen ..	6	0	9	0	
Dracaena, various, dozen ..	12	0	30	0	Mignonette, per dozen ..	6	0	8	0	
Dracæna viridis, dozen ..	9	0	18	0	Myrtles, dozen	0	0	9	0	
Erica, (various) per dozen	9	0	18	0	Palms, in var., each	1	0	15	0	
Euonymus, var., dozen ..	6	0	18	0	„ (specimens)	21	0	63	0	
Evergreens, in variety, doz.	4	0	18	0	Pelargoniums, per dozen ..	9	0	15	0	
Ferns in variety, dozen ..	4	0	18	0	„ Scarlet, per doz. ..	4	0	8	0	
Ferns (small) per hundred	5	0	8	0	Spiræa, per dozen	6	0	9	0	

Roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Anemones, dozen bunches..	1	6	to	3	0	Mignonette, dozen bunches	3	0	to 6 0
Arum Lilies, 12 blooms ..	5	0	9	0	Narciss, (various), dozen				
Asparagus Fern, per bnch.	2	0	3	6	bunches	1	3	2	0
Azalea, per dozen sprays ..	0	6	0	9	Narciss, Yellow, dozen				
Bouvardias, bunch	0	6	0	9	bunches	1	0	2	0
Carnations, 12 blooms ..	1	6	3	0	Orchids, var. doz. blooms	1	6	12	0
Daffodils, double, dozen					Pelargoniums, 12 bunches	6	0	9	0
bunches	1	6	3	0	Polyanthus, dozen bunches	1	0	2	0
Daffodils, single, dozen					Pyrethrum, dozen bunches	1	6	3	0
bunches	2	0	4	0	Roses (indoor), dozen ..	0	9	1	6
Eucharis, dozen	3	6	4	0	„ Tea, white, dozen ..	1	0	2	6
Gardenias, dozen	3	0	6	0	„ Yellow, dozen (Niels)	3	0	4	0
Geranium, scarlet, doz.					„ Red, dozen blooms ..	1	6	4	0
bunches	6	0	9	0	„ Safrano (English),				
Hyacinth (boxes) Dutch..	1	6	4	0	dozen.. ..	1	0	2	0
Lilac, White (French), per					„ Pink, per dozen	4	0	8	0
bunch	3	0	4	0	Smilax, per bunch	4	0	6	0
Lilium longiflorum, 12					Tuberose, 12 blooms ..	1	0	1	6
blooms	2	0	4	0	Tulips, dozen blooms..	0	6	1	0
Lily of the Valley, 12sprays,					Violet Parme, per bunch ..	2	6	3	6
per bunch	0	6	1	0	„ per doz. bunches ..	1	0	1	6
Maidenhair Fern, per dozen					„ (French), per dozen				
bunches	6	0	8	0	bunches	0	9	1	6
Marguerites, 12 bunches ..	2	0	3	0	Wallflowers, dozen bunches	1	6	4	0



NOTES BY THE WAY.

In taking up the "Agricultural Gazette" of March 29th we found one or two things of more than ordinary interest to us, and we shall here reproduce them for the benefit of those who have not had the opportunity of seeing the above-named paper.

There has been much said on the subject of cheap carriage of agricultural produce, a more direct method by which to bring the consumer into nearer touch with the producer, and so far the great obstacle has been expense of transit.

Now the Great Eastern Railway took the matter in hand last year, and issued their list of prices, which was fair and reasonable. The goods were conveyed to purchasers in London, and during the year 1896 60,000 such parcels or boxes had been carried. This year is but in its first quarter, yet the months of January and

February show a total of 12,664 parcels as against 2994 for the same months in 1896. It has been estimated that the average value of each lot would be at least 7s., and the Chairman and Directors contemplate extending the system to other large towns and watering places.

That must be a boon indeed, for who but knows the exceeding dearness of fresh country produce in a fashionable seaside resort. The great towns, too, should prove a ready market, for, as a rule, it is easier to get whatever one wants more cheaply in London than in any provincial town.

The Manchester, Sheffield, and Lincolnshire Railway Company has made a similar departure, and is advertising a list of country people willing and ready to provide their town customers with dainties and pleasant country living. We think the scheme must "go," as this line "taps" such an intensely rural neighbourhood from the Humber to Sheffield in a straight line, and there are the other offshoots quite as remote from the busy haunts of men.

We turn the leaf and find an article headed "Fruit Growing on Farms," by Mr. Cecil H. Hooper. This is a question to which there are several sides. It is no use growing fruit unless we can get it to the consumer quickly, and without the intervention of salesmen's commissions. The population is vastly increasing in the large towns, and the love for fruit is greatly on the increase. For instance, take the Tomato, a few years ago a fruit only eaten by the upper and middle classes. Now go into any market, and ask who are the principal consumers, inquire what becomes of boxes and boxes that arrive weekly in the villages of the ironstone districts. You will find the horny-handed son of toil eats them at every meal, and in prodigious quantities. Give him the chance of other good wholesome fruit, and you will find him an excellent customer.

We think when all the railway companies grant equal facilities to the Great Eastern the thing will soon be an established fact. There are many physicians who strongly recommend that one meal a day should consist entirely of fruit, and no one with a knowledge of children will fail to see how popular such a departure would be in large families, mainly made up of young folks.

Mr. Hooper has a word of warning as to the *where* and *how* of planting. As to soil, he says any land worth cultivating at all will generally do for fruit, provided it is naturally or artificially drained. Damp valleys are undesirable, on account of the worse effect of frost than on higher ground. Apples do best on sandstone; Pears, Plums, Cherries where there is plenty of lime; Raspberries on a light soil full of vegetable matter, and Black Currants on moist land. Observers will soon ascertain for themselves what varieties do best in their immediate neighbourhood.

Then arises the question of a tenant's security. You don't plant fruit trees for nothing, and you therefore must not be at the mercy of a six-months notice. The Agricultural Holdings Act won't help a tenant to get compensation unless he had the landlord's consent to planting in writing. The Market Gardeners' Compensation Act is good security, but it only applies to land recognised as market gardens.

In case of a lease it ought to be transferable; and, secondly, there should be some arrangement as to compensation at the end of the lease, unless the rent has been exceedingly low. In the Evesham district much fruit is grown, and the tenants there have a fairly good arrangement. "The tenant hires the land for a term of years, and if he desires to quit he finds a customer for his interest in the holding and takes him to the landlord or agent, who accepts him as the new tenant if he is considered satisfactory." Mr. Hooper thinks more suburban and provincial markets are required.

We turn to another page, and find a review on "The Wasted Orchards of England." We fear the reproof is needed. The writer bestows little praise and much blame, and the question is on whom is the blame to fall, owner or occupier? Is this a result of the depression in agriculture, or the result of apathy or ignorance? A little of both, probably; but it is ill work appealing to deaf ears.

At Oxford there is a Sibthorpean Professor of Rural Economy, and we note with pleasure that the Clothworkers' Company, London, have offered to guarantee a sum of £200 per annum for five years to enable this Professor (Warrington) to supplement his lectures by others embracing the more important parts of agriculture and forestry, subject, of course, to conditions submitted to the University authorities.

This excellent offer is supplemented by another offer of £100 per annum from a lady whose name is well known in all agricultural circles. We refer to Miss Ormerod. Her reason is this: From her knowledge, gained by much correspondence, she is sure that our great landholders would be much benefited if they were more conversant with the broad principles of agricultural and fruit management, which those in their high positions can hardly acquire except at our leading universities.

Yes, indeed, this practical knowledge would be far above any classical or mathematical training in helping a man to make the best of his ancestral acres.

WORK ON THE HOME FARM.

We have had a fine week and no hindrance to work on the land, which has dried very much, and on light soils Barley has been drilled under very favourable conditions. Any fields inclined to strength are rough and require a good rain to soften the dried clots which the roller has failed to crush.

With drier conditions the weather has been much colder, with considerable frost and occasional show showers. Wheat has stood well, but, alas! for the stocked pastures. From spring-like greenness they have rapidly changed to a brown bareness; the sheep have destroyed with their feet more food than they have eaten; in fact, on a frosty morning a sheep has five mouths. Now we see the full value of the Mangold crop.

After drawing on the Mangold pie for the lambing ewes since March the 1st, and for the cattle for a fortnight, we have been carting away the residue and re-storing them where most likely to be wanted. We have eighty big loads left, and there were only 4 acres of them; except Cabbage we think Mangold the most valuable crop on a mixed farm. It requires liberal manuring, but not too much farmyard muck, or if the season be dry there might be danger of not getting a plant. Three cwt. bonemeal, 3 cwt. superphosphate, and 1 cwt. of nitrate of soda, put in with the seed, with 1 cwt. more nitrate given as a top-dressing after cleaning, would grow an acre of good Mangold on any land not too light for the crop.

It is now time to sow field Carrots. For market purposes, scarlet Intermediate and Altrincham are the best, and the latter is bad to beat for feeding purposes. Deep sandy soil, not too rich, is the best for Carrots. They should be drilled 20 inches apart, and for market purposes should not be thinned. About 8 lbs. per acre is the suitable quantity of seed to sow.

Very little spring corn is up in many places. What is up will soon want rolling, and the small seeds sown, if they were not put in with the corn. The land cannot be too solid for Clover, there is always a good plant on a headland or in a gateway.

The cold weather is keeping the cattle too long in the yards, and they are eating up what we had been hoping to keep in reserve to commence next winter with. We are referring to straw and hay.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1897.		Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
April.			Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday	.. 4	29.497	43.2	38.9	N.E.	42.0	49.1	38.4	98.4	34.0	—
Monday	.. 5	30.062	40.2	37.1	N.E.	41.7	51.9	29.9	100.1	20.7	—
Tuesday	.. 6	29.736	42.1	37.2	E.	41.3	48.9	36.1	85.2	29.1	0.234
Wednesday	7	29.602	39.1	38.7	N.E.	41.5	51.1	35.9	90.5	26.0	0.071
Thursday	.. 8	30.014	43.0	40.4	N.	41.9	54.4	38.8	100.1	33.1	—
Friday	.. 9	30.008	48.1	44.2	S.	42.9	56.9	35.2	92.6	25.9	0.050
Saturday	.. 10	30.094	46.6	42.4	N.	44.6	53.6	43.2	105.8	42.7	—
		29.870	43.2	39.8		42.3	52.1	36.8	95.8	30.2	0.355

REMARKS.

- 4th.—Bright early, and frequent sunshine during day.
 5th.—Sunny morning; generally cloudy after 3 P.M.
 6th.—Fair, but sunless.
 7th.—Heavy rain from 5.45 A.M. to 7.15 A.M.; dull and damp, with fog, till 10.30 A.M.; then occasional sunshine, and thunderstorm from 3 P.M. to 3.45 P.M., and rain till 6 P.M.
 8th.—Fine, and generally sunny after 10 A.M.
 9th.—Cloudy morning; sunny afternoon; rainy evening.
 10th.—Showers early; frequently sunny after 9 A.M.
 An average week, but sharp grass frosts on three nights.—G. J. SYMONS.

OWING to the large increase in their business Smith's Advertising Agency of 132, Fleet Street, have just added new offices at 82, Fleet Street, thus doubling their already large establishment. The new branch will be exclusively employed in transacting advertisements for the provincial papers, the head office retaining all the London work.



**FINEST SELECTED STRAINS
OF TESTED GROWTH**

BARR'S "LIGHTNING" RUNNER BEAN
A valuable acquisition, bearing in abundance clusters of pods, remarkably early, and of delicate flavour. Per Half Pint, 2/-.

BARR'S MONSTROUS LONG-PODDED BROAD BEAN.
The earliest, largest, and most productive of long-podded Broad Beans, and of fine delicate flavour. Per Quart, 2/6; per Pint, 1/6.

BARR'S "LEMON GLOBE" ONION.
A grand exhibition Onion, handsome in form, of large size, mild in flavour, and a good keeper. Per Packet, 1/-; per Ounce, 2/6.

FLOWER SEEDS.—Barr's Specialities for 1897.

NEW LARGE-FLOWERED CRESTED BEGONIA.
A splendid novelty, the large handsome flowers having crested combs, colours brilliant and varied. Per Packet, 3/6 and 5/-

BARR'S SUPERB FRINGED PETUNIAS.
Flowers of immense size and deeply fringed, colours rich and varied. Per Pkt., 2/6 & 3/6.

BARR'S Extra Selected LONG-SPURRED COLUMBINES.
Mixed, flowers of great beauty in form and colour. Per Packet, 2/6.

BARR'S NEW SEED GUIDE FOR 1897
will be sent free on application.

BARR & SONS, 12 & 13 KING STREET, LONDON.
Nurseries at LONG DITTON, Surrey, near to Surbiton Stn., S.W.R.

BEGONIAS.

Double and Single, Gold Medal Collection, for Conservatory and Exhibition, the largest and best in the trade. See Catalogue.
BEGONIAS FOR BEDDING, superb quality, Double, 6s. and 9s. per dozen; Single, to colour, 5s. per dozen, 35s. per 100; 10 colours mixed, 4s. and 28s.; fine mixed, 3s. and 2s.

B. R. DAVIS, YEovil, YEovil, SOMERSET.

LILIUM AURATUM.

The beautiful golden-rayed Lily of Japan. Magnificent for pots in the greenhouse, or for growing in the open garden. Deliciously scented, quite hardy. Planted now will bloom splendidly during the summer and autumn. Extra fine roots, 10 to 11 inches circumference, per doz., 7s. 6d.; 6 for 4s.; or 25 for 14s. Grand selected roots, 11 to 13 inches circumference, per doz., 12s.; 6 for 6s. 6d.; or 25 for 21s. All post or carriage free for cash with order.

DANIELS BROS., Town Close Nurseries, NORWICH.

CARNATIONS.—Clearance Sale.

A grand collection of choice named double flowered, in beautiful variety, including all the finest sorts. Strong plants from single pots, correctly named, per doz., 4s. 6d.; six for 2s. 6d.; or 25 for 8s. Double crimson Clove, deliciously scented, per doz., 3s. 6d.; six for 2s.; or 25 for 6s. 6d. Packing and carriage free for cash with order.

DANIELS BROS., Town Close Nurseries, NORWICH.

CHRYSANTHEMUMS.

CLEARANCE SALE.

A splendid collection, including all the most beautiful and popular of the Japanese and incurved varieties; strong, well-rooted cuttings, correctly named, per doz., 1s. 6d.; per 100, 10s. 6d. Extra choice sorts, per doz., 2s. 6d.; per 100, 15s. Six grand new exhibition varieties splendid, the set 3s. 6d. All post free.

DANIELS BROS., Town Close Nurseries, NORWICH.

FUCHSIAS.—Clearance Sale.

A magnificent collection of superb double and single flowered varieties, including the newest and most beautiful sorts in cultivation. Splendid for pot culture or the garden. Strong young plants, from single pots, correctly named, per doz., 2s. 6d.; six for 1s. 6d.; or 25 for 4s. 6d. Extra choice sorts, per doz., 3s. 6d.; six for 2s.; or 25 for 6s. 6d., post free.

DANIELS BROS., Town Close Nurseries, NORWICH.

20 ACRES of FRUIT TREES

In all the best sorts and forms for the Villa Garden or the Orchard. Free from blight and disease, clean, healthy stems, and branches carefully pruned in good form. Roots a mass of fibre. Sizes from maidens to trees six to eight years old of many kinds, and all TRUE TO NAME.
NEW CATALOGUE, with descriptions and Prices, Post Free.

CLIBRAN & SON,
MANCHESTER, Bangor, Llandudno Junction, and Oldfield Nursery, ALTRINCHAM.

CHEALS' celebrated DAHLIAS

WORLD-WIDE RENOWN · STRIKING NOVELTIES
NEW CATALOGUE POST FREE
J. Cheal & Sons, GUSSEY

ORCHIDS.

CLEAN HEALTHY PLANTS AT LOW PRICES.

Always worth a visit of inspection. Kindly send for Catalogue.

JAMES CYPHER,
Exotic Nurseries, CHELTENHAM.

FOR FRUIT SEEDS ROSES

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Journal of Horticulture.

THURSDAY, APRIL 22, 1897.

DRILL HALL DIFFICULTIES.

FOR a considerable time it has been apparent that the Westminster Drill Hall has become inadequate for the proper accommodation of the products displayed at many of the meetings. The tables have been simply packed with exhibits of various kinds, not all of them of specially superior merit or rarity. It has also been observed that unexpected consignments have arrived for which space could not in the nature of things be reserved, this involving either shifting or crushing together the earlier arrivals, or rejecting those of which either notice had not been given or the extent of space required granted. In fact, an unsystematic method of procedure had almost come to be established such as could not be permitted at well-managed shows.

While it is gratifying to see the active and ever-widening interest taken in plants, flowers, and other products of the garden, as represented by not only the pressure of exhibits but by the increasing number of visitors to admire them, and while the enterprise of the several purveyors of what is beautiful and good is entirely commendable, still when exhibiting is conducted on what may be termed haphazard lines, grave inconvenience is bound to ensue sooner or later. It is to be conceived that it has already been felt, and besides, the absence of precise rules and loyal adherence to them cannot possibly be conducive to the harmony of feeling that should prevail on the occasion of the periodical meetings.

It cannot be seriously asserted by impartial visitors that of late the Committee meetings of the Royal Horticultural Society have been in anything like strict accordance with the purpose and object for which these meetings were established—namely, the presentation of new or rare plants, flowers, or fruits at times when they could not otherwise be brought before the public for examination by persons specially qualified to appraise their value and determine the honours to which they might be entitled. That is and always has been the primary object of the periodical assemblages, plus collections of products embodying distinct or special features investing them with more than ordinary interest

because of their beauty, usefulness, or the cultural skill displayed in their production.

All who habitually attend the Drill Hall meetings, and know what is good when they see it, will most readily concede that time after time collections of fruits and vegetables, also groups of plants and flowers, have been in the highest degree meritorious. They have represented cultural skill of the first order, and have been in truth grand object lessons, inciting to greater efforts on the part of many persons who have been impressed with what they have witnessed.

On such imposing and instructive displays have been bestowed well merited honours; but the same strict adherence to the facts of the case have compelled both adjudicators and on-lookers to admit that by no means all the contributions have been of a particularly commanding nature. Some collections have been composed of plants or products of the most ordinary kind as if to suggest that the exhibitors felt compelled to "show something;" and further, the exhibits have suggested that if the individual items were of a commonplace nature that even these would "tell" if the bulk were of unusual proportions.

Again, it has often been observed and remarked that in the desire to make a "great display" exhibitors have not infrequently overshot the mark by including so many inferior samples, and these of necessity lowering the average value of the whole. It is quite certain that if one-third, or occasionally one-half, of the relatively inferior products had been withdrawn that the superiority of the remainder would have had greater weight, and the merits of the exhibit in its entirety raised accordingly.

It is true, as has more than once or twice or thrice been heard, that the adjudicators have sometimes seemed to encourage collections by granting awards more because the exhibits have covered a great extent of table space than anything else, and it has been said that kind and generously disposed men are prone to let their hearts rather than their heads dictate the voting of medals, because a showman has "been at such great trouble and expense to bring so much stuff." The governing body of the Society cannot prevent a body of twenty or thirty men voting medals at times on the principle of generous impulse; and the greater the number of adjudicators jostling against each other the greater is the reduction of individual responsibility; but the Council can limit the extent of collections, and this would have a tendency to increase their intrinsic value, and a hall less crowded with products, with every item good, would be more worthy as a spectacle in horticulture than a crush and a jumble.

Moreover, if it be desired, as seems to be the case, and not unnaturally, to limit the awards of medals to a matter of cold-hearted justice the Council can do another thing—namely, instruct the Committees to delegate three (as in the case of judging fruits for flavour), or not more than five members to examine the collections and recommend awards for them. Each member would then be impressed with a sense of his individual responsibility, and the various points could be much better discussed than by a score of men in a hurry. There would always be plenty of members to deal with the produce at the tables.

These remarks have been incited by a circular we have received from the Royal Horticultural Society bearing on the overcrowding of the Drill Hall, and the sending of large consignments on the assumption that space can be found for them whether the hall is full or not.

EXHIBITORS AT THE DRILL HALL MEETINGS.

The Council of the R.H.S. wish to remind exhibitors that the object for which the various Committees of the Society were constituted and the bi-monthly meetings held was to allow of any new or rare flower or fruit, which might be in perfection at a time when no exhibition was being held, being submitted to a body of experts for adjudication.

By degrees a practice has grown up of groups of plants and collections of fruits being also sent by exhibitors, such plants and fruits being frequently neither new nor rare, and these groups and

collections have become so large and frequently so numerous that there is danger of the more important work of the Committees being lost sight of.

The Council, whilst grateful for the consistent support the Society has received from exhibitors, and desirous of offering every encouragement to them, and of seeing the Drill Hall always well filled, feel that the time has arrived when some limit must be put to the size of the groups and collections; they have therefore drawn up the following rules, which they have directed the Superintendent to strictly adhere to:—

1, Exhibitors at the Drill Hall of groups and collections must give notice to the Secretary, R.H.S., 117, Victoria Street, Westminster, not later than the Friday before, of their desire to exhibit, and must, at the same time, state the nature of their proposed exhibit, and how much space it will occupy; this must in no case exceed 100 square feet.

2, Exhibits entered separately for the separate committees will be considered distinct, but not more than 100 square feet of table space can be allowed for each; that is to say, an exhibitor may stage 100 feet of fruit, 100 feet of Orchids, and 100 feet of Floral Committee plants and flowers; but each group must be separately staged, and consist exclusively of fruit, Orchids, and hardy or tender plants or flowers respectively—not mixed together, excepting only that small decorative foliage plants may be used amongst Orchids and fruit, if desired.

3, The limit of 100 square feet does not apply to large plants placed on the floor; special arrangements should be made beforehand for such plants with the Superintendent.

4, No alteration is proposed in the existing rules with reference to the exhibition of new or rare plants, flowers, or fruits for the Society's certificates and awards of merit.—By order of the Council.

W. WILKS, *Secretary*, 117, Victoria Street, Westminster.

N.B.—Should at any time the entries of groups be so numerous as not to allow of all being staged in their entirety, the exhibitors will be informed how much less space than that they have applied for can be placed at their disposal.

It is a little surprising that some such conditions were not promulgated long ago in the interest of smooth routine and the prevention of disappointments.

ANNUS MEMORABILIS.

COMING events are now sufficiently foreshadowed on our horticultural programme to warrant the assumption that exhibitors this year will do their duty—that events to come off will be worthy, so far as one may anticipate, of this memorable year. Sufficient stimulus in the way of peculiarly, and one may say pecuniary, attractive prize lists has at least been provided, and it may be expected that points will be scored to the general credit. Good prizes—good shows. Well and good. Very good, too, is the outlook in this direction; yet somehow this, with other schemes propounded, and which we have no reason to doubt will be carried to a successful issue, seem to fall a little short of that loud national horticultural hurrah we would like to vent our feelings in, the echoes of which should resound down the corridors of time.

Higher horticulture is now a power with us, that probably does not obtain in any other land; we feel that it is so, that it is recognised to be so, hence we look around and ahead into the near distance to prejudge the effect of our practical paean of praise in the general rejoicing, and who will say amongst keenly interested ones that unqualified satisfaction ensues? We may, of course, take it for granted that of necessity, which necessity must for the nonce include a vast amount of luxurious decoration contributed by gardeners and gardening to refined festivity, the peaceful art will play no unimportant part; but familiarity with such displays upon not rare occasions of ultra-magnificence leads us to regard them as a matter of course, and one fails to find that deep and lasting impression we fain would engrave upon this particular page of the tablets of time.

It is not the summing up over that long period of sixty years which cannot but show a favourable balance upon the credit side, but it is this particular year's account which resolves itself into the question at issue, and whether it will or will not justify our hopes and fulfil our expectations. These remarks are really the sum and substance of some conversation with a gentleman recently, who pertinently asked, "What is it you gardeners want to do more than you have done in this year's horticultural programme? You must be satisfied in well doing, and possibly a margin will be found for something monumental which the near future will reveal." May it come quickly and be worthy of the object, I respectfully respond.

If there is any particular flower destined to glorify gardening and share the honours of this memorable year surely that is our English emblematic one, the Rose, and judging from present appearances it should be well represented at the time of our general

rejoicing. Perhaps we are too prosaic a people to embody sentiment in visible form by wearing the national flower; or perhaps it is owing to the unfortunately early date (April 23rd) fixed for the festival of our patron saint, St. George; or, again, to there being no mythological connection with him and the floral emblem, that so little is thought of either; but wherever the missing link may be we may, I think, regard it as the flaw which causes the Saint's day to pass unheeded, and the floral emblem, as such, to be unregarded. There is, however, for the latter a fine opportunity this year to do it justice.

Is there any Rose in particular to which has been accorded the honour of being our representative flower? I think not; and if not it is a question worth settling for good and all, and no better time than the present (the present year) could be found for doing so; but with all respect to Continental raisers our Rose must be of British breed and birth. Possibly among home specialists there is something good—very good, worthy of the year and the object, and ere 1897 passes a Victoria Imperatrice, Grand National, or Merry England will make its *début* and receive a hearty welcome.

Apropos of this, one wishes that some new and noble product of the vegetable kingdom might emphatically and indelibly mark for all time the horticulturists' loyalty of bearing the name of the illustrious lady, our Queen. Such we have truly in that grand annual Lily, that queen of the water nymphs, the Victoria regia; but one would like that name to be honoured by some grand old family of trees, such as the Wellingtonia, yet scarcely dare hope of there being anything so grand and noble and capably patriarchal destined to reach the shores and flourish in the climate of Old England.

Possibly we, as gardeners, should "be satisfied in well-doing," and possibly, too, there is something akin to vulgarity in ambition's desire to blow a loud horticultural blast on the trumpet of fame. If so it is, I think, pardonable. Probably landmarks of the long past shed a light upon the subject, and we may by analogy see what future generations may regard as the most valuable, as probably they will be the most lasting, mementoes of Victorian horticulture. This will be, as it is now, found in the scriptures of gardening work and thought. If we now regard the avidity with which the early examples of the then standard works, or even the stray scraps of horticultural literature, are sought for to tell us of those things, of those fashions, of those men and their manual works preserved to us by this means from oblivion, then I think we may here look for and hope to find satisfaction for our feelings.

Generations yet unborn must, one may reasonably expect, prize the standard literature of present-day teachings, which it is safe to say represent a degree of excellence previously undreamt of. Looking upon a gardener's library of to-day, embellished as it is by all that modern science and art can now accomplish in reproducing form and colour of luscious fruits; fruit alone, in its literature, possesses all that can satisfy Macaulay's New Zealander when he arrives. Can it be otherwise that our floral treasures, so largely increased, so vastly improved, with the present popular section of hardy plants so marvellously augmented, will not inspire some master hand to tell of them up to date; to be a guide to the present, a monumental work worthy of this advanced subject, worthy of a cause paramount if passive of this unique Victorian era.

It is on these lines we may, I think, hope to find, or rather for our Nova Zealander friend, to discover that horticultural aureole surrounding Victoria, rather than in the variorum of great shows, big prizes, or even those most commendable schemes already well in hand with which we gardeners would honour the Queen—God bless her.—ONE OF THEM.

VIOLETS.

THE popularity of many flowers seems to ebb and flow with the tide of fashion, but "sweet Violets" are always in demand during winter and spring. The most fastidious never seem to tire of them, but rather to require an almost unlimited supply of large, highly coloured flowers.

Plants growing in frames will now have practically finished flowering, and the time has arrived for taking the necessary steps to secure an abundant supply for next season. Methods of procedure seem to vary with different cultivators, and each pins his faith upon his own particular plan. Some maintain that by dividing the old plants and planting single crowns the best results are obtained; others aver that there is nothing like raising young plants from runners each year. Good results are without doubt obtained by either practice, and it is often necessary to employ both crowns and runners to secure the requisite number of plants. During the past season I have thoroughly tested several methods, and have fully convinced myself that the young plants produce the finest flowers, and for that reason I intend to depend entirely upon plants raised from runners in the future. Close observation should,

I think, show anyone why such is the case. It happens in this way. When plants are divided and the crowns inserted they form too dense a mass during the summer, for although the runners may be regularly removed suckers spring up from the base of the crowns, and by the time they are ready for planting in frames the plants are often from 9 to 12 inches in diameter. Grand plants, one is naturally led to think; and so they are in a certain sense, for all goes well with them till winter comes with its short, dull, wet, and cold days. Then damping begins, for no matter at how great a distance the plants may be set apart the mass of crowns forming the plant does not admit of a sufficient quantity of air and light to play around every leaf to enable them to perform their functions properly, and thus produce flowers freely.

The type of plant we should aim at securing is a moderate sized one with a single plump crown, and few but thick leathery leaves. A good sized frame will accommodate a large number of these, and yet allow every leaf to be fully exposed to light. The number of flowers produced per plant may not be great, but in a given space they will be as numerous as when big plants are grown, but the size and colour of the blooms will be infinitely more satisfactory.

In raising a stock of plants from runners various methods will suggest themselves to different cultivators, according to the circumstances in which they are placed. The plan I adopt is the following. The plants are lifted from a frame where they passed the winter; the soil is then forked up, pressed firmly, levelled with a rake, and given a sprinkling of sand on the surface. Strong runners are next selected, many of which have already emitted roots. These are then planted a couple of inches apart in the prepared frame, watered thoroughly, and kept close and well shaded till they begin to grow freely. They are syringed on the afternoons of bright days, more air being gradually admitted and shade withheld as growth progresses. With this treatment the plants will be ready for planting in their summer quarters by the end of May.

A border having a north or west aspect is a capital position for them. If the soil of this border has been dug during the spring, all the preparation required is to dress with soot, tread firmly, and level with the rake; the plants are then set a foot apart, taking care to leave the crowns slightly above the surface of the soil; a thorough watering is given, and repeated when required for a week or two should the weather prove dry. Culture during the summer months consists of persistently removing runners as they appear, so as to induce the plants to develop sturdy single crowns, and should drought set in an occasional watering will be necessary, sometimes with weak liquid manure. The hoe must also, as a matter of course, be kept going among them, with the object of keeping down weeds and securing a loose surface to the soil.

Violets should be placed in their winter quarters early in September, so as to become well established before wintry weather comes. Every spare pit and frame ought to be filled with them, as few flowers are so much appreciated during the autumn and winter months. In very cold districts it is a good plan to make up a hotbed for placing a few frames upon, as by so doing a supply of flowers is obtained during very severe weather, when the plants are almost at a standstill in cold frames; for the bulk of the plants, however, hotbeds are not necessary.

The only preparation needed is to place a few inches of clinkers at the bottom to serve as drainage, over these a layer of leaves, to be followed by 9 inches of good light garden soil, with which a little soot and salt has been mixed. If the surface of the soil is from 6 to 9 inches from the glass, the plants will have ample room to develop without coming in contact with it. In planting I allow the plants to stand just clear of each other, and I find that by keeping the runners regularly removed throughout the winter the space given is sufficient to prevent damping. In order to secure plenty of runners for spring planting three of the strongest runners are allowed to develop on each plant in a couple of lights. In these the plants are allowed more space when planted in the frames.

Good double varieties are Comte Brazza, white; De Parme, lavender purple; Lady Hume Campbell, lavender; Marie Louise, lavender blue; and Parmensis fl.-pl., white, striped rose. In Princesse des Galles we have the finest of all singles, producing flowers as large as a florin. It is a new variety, which should be secured by all.—D. W.

SPIREA THUNBERGI.—This charming Chinese species is the earliest of the shrubby section to open its flowers out of doors. The flowers are pure white, about quarter of an inch across, star-shaped, and produced thickly all along the previous year's growth. The habit of the plant is all that can be desired. The growths are long, twiggy, and somewhat pendulous, and at the end of March are thickly clothed with pale green leaves and pure white flowers, which make a striking contrast. When mature the bushes attain a height of 3 feet, with a diameter of 3 to 4 feet.—W. D.

OUR HARDY PLANT BORDER.

(Continued from page 309.)

“SNAPDRAGONS” are truly old-fashioned plants that are both ornamental and useful as many have proved, and certainly they have been quite as much admired as any of the other occupants of our borders. My earliest memories in gardening matters are associated with these plants, for I assisted in the propagation of three choice varieties, by making and inserting some thousands of cuttings, and well do I remember the pride with which the flowering of the plants thus obtained was observed. The varieties were pure white, deep clear yellow, and an intensely rich maroon, and either in beds or lines they had a most beautiful effect. It has seemed that I have never since found varieties equal to the yellow and dark forms; but these early formed ideas are often more vivid than subsequent impressions. A few years ago, however, I saw in one of the princely gardens of the Rothschild family a most harmonious arrangement of flowering plants, in which shades of yellow were the predominant feature, and amongst these a rich yellow *Antirrhinum* was employed in large quantities, and with excellent effect. This was the nearest approach to the favourite variety of my younger days, and I have since succeeded in procuring some of the same strain.

Antirrhinums have shared with other popular plants the attention of seedsmen, who have been so busily engaged during the present century in improving the different flowering plants which come within their scope. Some time since business took me to several seed farms in various districts of England, and I was surprised to find what numbers of distinct strains have been formed, especially amongst the dwarf types of “Snapdragons.” These come as true from seed as could be wished, the divergencies being not more numerous in many cases than the losses in raising varieties from cuttings, and it is obvious which is the quicker and more economical method of obtaining a large stock. They can be had in separate colours or mixed, while the striped or parti-coloured varieties are also very attractive, though I have a preference for the single tint flowers.

The purpose for which they were intended in our border was to constitute masses at intervals in contrast with the other occupants, and for this reason it was decided to start with seed of the best mixed strain obtainable. In this we were fortunate, for the seedlings raised proved most satisfactory, and formed some beautiful beds, including an astonishing variety of bright or delicate colours—maroon, crimson, purple, pink, mauve, yellow, cream, and pure white were all represented in fair proportions, the spikes closely furnished with large flowers, and the general habit of the plants bushy. The flowers are produced during a good portion of the summer months, and last a considerable time, except in very dry weather, when the buds soon become disfigured by the seed-bearing stems. From the most distinct of the varieties we have selected a few for increase by cuttings, and thus we have all that are required, either for special positions or mixed beds.

The cultural requirements of these plants are simple enough to bring them within the reach of all who have a garden; in fact, *Antirrhinum majus* as a wild British plant is found growing in similar situations to the common Wallflower, often on old walls or in situations where the soil is greatly inferior in fertility to that of the most ordinary garden. This is an indication that a rich soil is not essential, although of course there is a marked difference between the vigour and floral size of the wild plant and its cultivated descendant.

Though *Antirrhinums* will grow in almost all soils, one well-drained, not too dry, that has been thoroughly dug, and dressed with old decayed farmyard or stable manure, suits the plants admirably. The seed can be sown in early autumn or in April and May, but the sowings made in April, provided the soil is in the right condition, have given us the best results, particularly where the seed has been sown broadcast; and after a suitable thinning to allow the seedlings room to develop, they have been left undisturbed until they flowered. If the seed is sown later in the season it must be done sufficiently early to have the seedlings transplanted and well established before winter. They in either case can be placed out 6 inches apart, and they will make a full bed the first season, and they should be transplanted the next season to 9 inches or a foot apart, trimming the shoots in at the time, as they will grow freely and become bushy little specimens. Superphosphate, at the rate of 1 oz. to the square yard, has produced the most marked effects with these plants; the nitrogenous manures encourage too much stem and leaf growth, but the superphosphate unquestionably improves the size, colour, and numbers of the flowers.

As a margin to paths and roads, or for planting on banks or rockery borders, there are few hardy plants to equal the *Aubrietia* for spring flowering. Sufficient to stock a large garden can be

procured for a very moderate expenditure in seed, and when the plants have made a year's growth they will be compact tufts covered with purple flowers, and seen in large masses or lines they have a most pleasing effect. Several forms of *Aubrietia* of deep or brighter hues than the common type are sold under special names, but from the seedlings we have raised six very distinct forms have been selected, ranging from dark purplish blue to nearly white, and these are being increased by division. Amongst many thousand seedlings raised, however, there are very few that would be discarded for imperfection in colouring, and though the size of the flowers varies also, yet the majority are quite satisfactory.

Certainly in growth and floriferousness they leave nothing to be desired, and the beauty of plants a foot in diameter bearing countless flowers can be imagined, especially when they are contrasted with some other early flowering plant. Through March and April they continue attractive, while in some seasons the flowering is prolonged into May. We prefer sowing the seed about the middle of April, transplanting the seedlings as soon as they are large enough to handle conveniently, and scarcely any after attention is required. Ordinary soil suits them, and we have not found any appreciable advantage from the use of artificial manures except superphosphate, a very small quantity (about half that named for *Antirrhinums*) improving the colour of the flowers slightly.—A COUNTRYMAN.

(To be continued.)

AUBRIETIAS.

LOVERS of spring gardening—what a numerous family they are—should now find each day full of surprises and genuine pleasure, for notwithstanding the bitter winds and driving rains lately experienced every day seems to add to the “feast of beauty” to be seen in the gardens of this fair isle. Hyacinths, Tulips, Wallflowers, Violas, Myosotis, Arabis, *Limnantes* and Daisies brave the elements surprisingly well, and make a show of bright fresh beauty which is seen to advantage when the fitful sunshine bursts out in sudden splendour. The popular flowers already named are invariably grown in quantity.

Where spring gardening is a feature *Aubrietias*, as they well deserve, often find a place, but I think they ought to receive a much larger share of attention, seeing how extremely pretty they are. For permanent edgings to large beds they are unsurpassed, as they last a long time in flower, and throughout the summer they look fresh as the foliage is of an attractive glaucous colour. When once established they give little trouble for years, and in a geometrical flower garden are much to be preferred to edgings of *Arabis alpina*. *A. Leichtlini* is perhaps the very best variety, because it supplies a colour (rosy carmine) not very plentiful among spring flowering plants. Masses of it, when in flower, are extremely showy, and being very dwarf in habit of growth it is just the thing wanted for some beds when so many others around are occupied by taller growing plants. Those who are fortunate enough to possess a few good masses ought to have no difficulty in raising a large stock of plants to provide a display next year. To accomplish this every available cutting should be secured as soon as the plants have done flowering.

A good method of propagation is to insert the cuttings in light soil in a frame, which should be kept close and well shaded till the cuttings have rooted. Air may then be freely admitted till the young plants are large enough for transplanting in the reserve garden. In preparing the soil for their reception it must be made light and rich in order to secure strong plants by the autumn. Unless this good culture is given two seasons will be required to obtain fine plants, and there is nothing but the want of attention to prevent the accomplishment of the object in view in one season. *Aubrietias* may also be raised in large quantities by seeds sown at the present time.

Although seedlings do not come quite true to colour, they scarcely vary enough to make this a serious objection against them, and after the first season of flowering it is possible by a little selection to get an improved strain, even brighter in colour than the present form of *Leichtlini*. I find it a good plan to sow the seeds in boxes, which are kept in a frame till the plants are large enough for pricking out. When this is done they are set 3 inches apart, and later on alternate plants are removed to give those remaining room to develop. In this way fine plants can be obtained by November next.

A. deltoidea and *A. purpurea* are good old varieties, but they are quite eclipsed by such newer ones as *Hendersoni* and *græca superba*, each of which has large, well-shaped flowers, purple or violet-purple in colour. *Aubrietias*, when grown in borders or on rockwork, will continue to thrive and extend for years without

receiving any other attention than that of being kept free from weeds, and being given an annual dressing of manure or light soil; but when used as edgings in the flower garden it is necessary to replant every two or three years, otherwise they get somewhat patchy, as it is natural for them to ramble and establish themselves in all directions rather than be confined to a given space. A certain number of young plants should therefore be raised each year, so that whenever an edging needs uprooting a supply may be ready to take place of the old ones—not because old plants are of no further use, but because young ones are preferable for forming edgings. Those which they replace can then be planted in borders on banks, or in the many suitable positions always at command for them, as few gardens are so full of “good things” as to leave no room for more. Those who happen to preside over one in which such a happy state of affairs exists can easily dispose of their surplus plants by giving them to a less fortunate neighbour.

An idea I hope to carry out in a wide herbaceous border is next autumn to plant deeply, almost a foot apart, Tulips, then cover the surface with Aubrietias. The two will flower simultaneously, and go on satisfactorily for some years without being disturbed.—H. D.

TULIPA KAUFMANNIANA.

At the Royal Horticultural Society's meeting, held in the Drill Hall on March 23rd, Messrs. Barr & Sons and R. Wallace & Co. exhibited flowers of this handsome species, to which the Floral Committee adjudged a first-class certificate. It is a Central Asiatic species, that was, according to Johnson, introduced in 1877, and is figured in the “Botanical Magazine,” t., 6887. The flowers reach a height of upwards of 18 inches, and are pale lemon in colour, the base of the flower being clear yellow. More beautiful than the inner portion of the flower, however, is the reverse of each outer petal, which is of a peculiarly pleasing shade of red, giving to the flower prior to expansion a very fine effect. The illustration (fig. 70) was prepared from flowers staged at the Drill Hall on the above date.

FLOWERS OF THE STREETS.

ONE of the most interesting and cheering features of London streets at this season is furnished by the huge piles and baskets of golden Daffodils to be seen at those coigns of vantage by the Royal Exchange and the Circus—Regent's, Piccadilly, and Ludgate. In these dull days they afford the only bit of sunshine and colour on which the tired eye can rest and refresh itself. Then the florists' windows supplement this outdoor flower show with choicer and more varied material. Moreover, it is not only the tones of primrose, purple, and gold—the Narcissus and Violet—that one loves to look upon, but the enjoyment of the sweet, pungent, and characteristic fragrances of spring. The growing of flowers on the window-sill and verandah is becoming more popular—indeed, in some of the fashionable streets and squares there is a charming display. This outdoor window gardening not only “blesseth him that gives,” in putting a strip of delightful colour by his window, but it is also a refreshment of spirit to the passer-by.

I remember well a garden at Harrow some years ago. It was on the south front of a handsome school building, with borders of flowers, closely mown turf, smooth gravel paths, and walls wreathed with Roses, Jasmine, and Honeysuckle. There was a drooping Sycamore on each side of the gate, and half a dozen circular beds in the turf. It was evidently a pleasure for visitors from London and wayfarers to pause by the gate, refresh the eye, and inhale the fragrance of Roses and Stocks, Wallflowers and Mignonette. I remember, too, while walking among the Welsh hills, now and again being agreeably surprised by flashes of bright colours. What a change from the overwhelming preponderance of verdure! Here for a furlong is a Jericho wall, not altogether uninteresting, however, on this the shady side of it, for Dame Nature is pitiful—she adorns and beautifies even the waste places, and so she had scattered the spores of Adiantum and Polypody, Hart's-tongue, Trichomanes, and Wall Rue; but over the top one sees the handsome glossy leaves of Magnolia, and detects the rich fragrance.

A singular and diverse folk these English of the country side. Some put all their bright colours in front, and strip their green-houses to furnish an overwhelming display; while others build Jericho walls round their gardens, and content themselves with a pleasance that no one but themselves can see. From time to time, however, a door is left ajar, and one gets a peep of a delightful old garden. The brilliant hues merge into the restful shade of evergreens, and there are glimpses along the Yew avenues of green pastures—a river, woods, and Heath-clad hills. Those picture bits I treasure, and others doubtless, besides the lonely wayfarer, are

grateful to the amateur who left his garden door ajar. An agreeable surprise this in the country, how much more in the crowded town! Gratitude is due to the thoughtful, kindly souls who afford the passer-by those sparks of colour and suggestive whiffs of sweet odours. They doubtless enjoy these all the more from sharing them with the public.

There are few things more accommodating than Ferns, and, indeed, few plants more interesting. The most readily grown are Hart's-tongue, the Male Fern, and Polypody. At least a score years ago I reverted in the “G. C.” to one of our very handsomest annual climbers. The misfortune, however, as some would say, is that it is so common, and consequently so cheap, and now I can imagine some cute amateur—a “Mum”-growing cynic—as he discovers the secret, saying, “Yes, a bloomin' Nasturtium. Isn't that it?” Yes, and although the poor man can purchase a packet



FIG. 70.—TULIPA KAUFMANNIANA.

of seed for a penny, I doubt if it is possible to name a more beautiful climber. No, for cheapness and effectiveness nothing can compare with our homely Nasturtium. With a little arrangement of string or sticks, this annual may either be trained up either side of a window and over the casement, or allowed to droop in long wreaths over the window boxes.

It was George Glenny, that martinet of the florists, who dilated on the acres and miles of cottage and garden walls remaining all the year round only blank spaces. What miles of Board School walls might be utilised in London for the growth of such ordinary climbers as Nasturtium, Canary Creeper, Convolvulus, Cobaea scandens, and Scarlet Runner Beans. But let me return to those humble street florists, the costers. One wonders how poorer London could live without them. Apart from their well-stocked barrows being an agreeable feature of the streets, they are unconscious benefactors these costers, for no charge is made for

a glimpse at their mountains of Wallflowers, Daffodils, and Polyanthus, nor for the sweet odours that steal in through the open window as if to greet the pale invalid with the promise of spring.

It is early work attending the market, and then perhaps half a dozen miles to journey back before he starts on his beat. Of course, they get an experience in their dealing with flowers. There are miles of their stalls and barrows in the wide thoroughfares of south, east, and north. I pause at one of the barrows, and look over his stock. A favourite flower is the old crimson Clove, but one cannot always get it true. I take up a root, and glance at coster inquiringly. "Jacks?" I say. "No, sir," he replies, with a significant emphasis on the "No," then takes off the strip of bast, and breaks the lumps of black unctuous earth. "See, sir," says he, pointing to the root to show that it was from a layer. "No, sir; no Jacks here!" The reader will remember that round Hounslow there are acres of garden ground devoted to seedling Carnations. These find a ready sale among the costers, and are known as "Jacks" in the trade. They are purchased at about 4d. per dozen; then sometimes neatly labelled, and sold at from 2s. to 4s. a dozen. Some of these itinerant florists get little plots of ground for themselves, and become expert propagators. The most delightful bit of gardening in London is the long strip that stretches from Hyde Park Corner to the Marble Arch. There is no doubt that the example set there has been of service to gardeners elsewhere. One would wish, however, to see here and there a bed of hardy herbaceous flowers, such as an amateur might grow in his garden at home. There are scores of beautiful old flowers that one scarcely ever sees, except in such nurseries as Backhouse's and Barr's. Properly chosen one could have continuous flowering from Christmas Rose and Aconite to Michaelmas Daisy and Chrysanthemum.

Much more might be done in enlivening and beautifying the gardens of London squares; as a rule they are almost destitute of colour, worn, and neglected.

I have been lately from time to time through some Sussex villages, and have been surprised at the cheerful effect produced by the common *Euonymus* planted by cottage walls. Close by is a country village—Angmering—of a rather better type. The little houses are limewashed, and beside each door and window is a tall *Euonymus*, kept pretty closely trimmed. The plant, as the reader is doubtless aware, has glossy evergreen leaves, and at this season is making its early spring growth of a light yellow—almost a primrose colour. There are long hedges of it by the Undercliff, Isle of Wight. It is also used in the Scillies to protect the Daffodils from wind storms. The *Escallonia macrantha*, however, is now preferred. *Euonymus* would make a capital town shrub, keeping its cheerful verdure all the year round. It is of a brighter green than Ivy, and therefore of a more cheerful aspect. The shrub may be purchased for a few pence in Covent Garden and from the costers' barrows, and is suitable also for window boxes.—HERGA.

NATIONAL AURICULA SOCIETY'S SOUTHERN SHOW.

It was an unfortunate thing that the fixture for this meeting was of so early a date, but it could not very well be avoided. It simply arose from the very late date of the second Tuesday in April. The Society has to make its fixtures coincide with those of the R.H.S., and that Society cannot very well alter the dates of the second and fourth Tuesdays of the month for its exhibitions. Why, it may be said then, was not the 27th fixed on? I believe that it was considered that this would be too late, and there is no doubt that a day midway between these two would have been more suitable.

I may, I hope, be forgiven if I dissent from the opinions that have been given in some quarters with regard to the excellence of the show, for in the first place the northern exhibitors were entirely shut out, and those who know of the pleasure it is to see the fine stands exhibited by the Rev. F. D. Horner and others in the North will at once recognise what a loss this was; a loss which was felt in other ways, for it is not only the flowers but the men themselves whom we like to see; and though the pleasure of seeing Mr. Horner's flowers is somewhat of a tantalising one, for growers are not likely to have the opportunity of obtaining the plants for years to come, yet it is a pleasure that only a florist can appreciate to see what our champion Auricula grower can do in the way of raising new flowers. Thus it came to pass that there were fewer competitors than there have been during the last few years, and if the earliness of the date had an effect on the quantities of the plants, so, I think, it seriously interfered with their quality.

Most of the plants entered for competition bore the evidence of being subject to fire heat, and I do not think that Auriculas will endure this without resenting it; the foliage has a drawn and

flaccid appearance, while the truss of flowers is in too many instances loose and sprawly. Of course I may be considered as an old fogey, who can only praise things of the past and not of the present, but that is not so. I gladly acknowledge the advance that has been made in all classes during the past twenty-five years, but at the same time I cannot but notice what seem to me defects in culture. I do not know, and can only conjecture, that some of the plants have been somewhat highly stimulated, and this also tends to roughness and coarseness, which are quite out of place in the refined and beautiful Auricula.

Another point in which I am at variance with the present taste is that of the number of pips allowed to remain on each truss; it is noted as a meritorious point that a truss had fifteen pips. I believe that if half of them had been eliminated according to the old rule that an edge flower ought not to have more than seven pips had been adhered to a more elegant and beautiful plant would have been shown; in the old times seven was always considered quite large enough for any truss of a Show Auricula, and in my poor judgment that view was correct. A crowded truss does not give the idea of that refinement which ought to belong to the Auricula; and if the pips had been closely examined as the Lancashire men are wont to do a good many of them would have been defective.

On the other hand one was sorry to see in the Alpine class prizes given to flowers which had not more than two expanded pips. Another cause of regret which was universally expressed was the retirement of Mr. T. E. Henwood, he having been compelled, owing to ill health, to part with his collection. It is to be hoped that this may only be for a time, as we shall be sorry to lose permanently so enthusiastic and successful a grower.

With regard to the varieties exhibited, it is remarkable how some of them hold the field. If the Rev. F. D. Horner and Prince of Greens are in good condition, no other green edge can approach them. I do not include in this Mrs. Henwood, which promises to be, when in good form, a formidable rival to these two; then amongst grey edges George Lightbody still is unsurpassed, and some of us would say unsurpassable. Acme amongst white edges holds much the same position, although it is very difficult to get a large plant of it, owing to its tendency to break up into offsets; while amongst selfs it would be difficult, when Heroine and Mrs. Potts are shown, to find any other flower that will beat them. I was interested to notice how the flowers raised by my late friend Mr. Woodhead still hold a prominent place. He only raised four varieties—Black Bess, Mrs. Dodwell, George Rudd, and Rachel; and when one looks into the prize lists, one is sure to find one or other of these flowers.

The same cause which interfered with the general character of the show interfered with the production of seedlings. Few were exhibited, the most conspicuous being a green edge, named Greenfinch, raised by Mr. James Douglas and exhibited by himself; this is a flower of good properties, the green edge being good, the body colour dark, and the tube bright. This flower received Mr. Martin Smith's prize of half guinea for the best green-edged seedling and also a certificate of merit, the worst point about it being its name, as Mr. Horner exhibited one two or three years ago under the same name.

Of the newer flowers Mrs. Henwood, to which I have already alluded, and Abbé Liszt were the most remarkable. This latter is a fine flower, but there is a narrow thread of grey round the edge of the petals which detracts from its purity as a green edge. The champion prize was gained by Mr. Phillips for a fine plant of the Rev. F. D. Horner, showing how this valuable variety holds its own. Such are the impressions of an old Auricula grower, who, it is true, has been brought up in a strait sect, but who, notwithstanding, has the notion that the rules laid down by the earlier school of florists was not far from being right.

I have said nothing about the Alpines or Fancies, as I do not profess to know them; but I cannot but allude to three baskets in which Auriculas (both Show and Fancy) are exhibited without pots and with a groundwork of the smaller foliage Saxifrages, having a very pretty effect.—D., Deal.

FINE SEAKALE.—Mr. Henry T. Martin sends us from the Gardens, Stoneleigh Abbey, some of the finest Seakale we have yet seen—large, tender, and pure. The plants must have been admirably grown, and the crowns large, for some of the heads girthed $7\frac{1}{2}$ inches, and were very heavy; length, 7 inches. Mr. Martin observes that he has been cutting 30 lbs. a week for the last six weeks, and there is not much wonder that such produce should be in great demand. It is doubtful whether the variety is different from that generally grown, and the point can only be determined by the summer growth. We rather attribute its excellence to good management as we have seen other heads apparently identical in character, though not quite so large.



ONCIDIUMS OF THE MACRANTHUM GROUP.

So varied and beautiful are the species belonging to this genus that one may almost be satisfied with a collection of them alone. There would not be a month in the year but some of them would be in flower, and the exquisite combinations of colour occurring in some of the species, the immense panicles of others, and the refined yet telling appearance of one and all, would make the choice a good one. Not the least charming are the kind with long twining scapes of showy blossoms included in the *O. macranthum* set, and as these are often set down as difficult plants to manage a few lines on their culture may prove of interest.

Perhaps the most frequent of all mistakes in their culture is trying to force them to rest, and here it may be noted that the flower spikes must not be looked for at the side of the natural pseudo-bulb as in many other species. This fact is sufficient to account for some failures. The beginner sees the young shoots breaking at the side of the pseudo-bulb, and comes to the conclusion that he has been treating it wrongly, and commences a starving course of treatment. This is quite wrong. The spikes usually appear when the new shoots have made some inches of growth, and to withhold sustenance from them at the outset gives them about the worst start possible.

I have in a somewhat lengthened experience of this class of Orchid found it much better to let the plants have their own way, and by observation—timely observation by the way—of the roots to encourage them when they are seen to be extra active and *vice versa*. Note the root, for instance, in nine cases out of ten when the spike is growing, and the pseudo-bulb beginning to take its true shape, as distinct from a growing shoot. The plant has the dual strain upon it, and the roots will be seen plainly foraging as it were for moisture, to maintain the lengthening spike, and to store a due quota of nutriment in the forming pseudo-bulb.

This is the time to be on hand with a full supply of moisture, and afterwards, when the plant has matured its growth, and the strain of flowering is over if they seem inclined to rest let them do so. This seems to me to be the crux of the whole affair as far as root moisture is concerned, and by following up this mode of treatment I have been fairly successful. Another point not to be lost sight of is the fact that these spikes are many months upon the plant coming to maturity, and the strain of them should be relieved by cutting the spikes as soon as possible after they open. It is a good deal better to cut them after, say, a fortnight or three weeks' flowering, than to leave them on until they fade, and run the risk of severely checking the plants. The little side sprays last a long time in water, but if cut entire the spikes will soon flag.

The most airy part of the cool house should be chosen for them, as here they will be least likely to be attacked by thrips, a deadly foe to all in this class. The atmosphere, as well as the roots, must always be kept moist, and during the summer months it is almost impossible to shade too heavily. Any slackening in the atmospheric moisture at the time when the spikes are just forming will assuredly cause these to become blind and dry off, and if during very severe weather the cool house is at all likely to be kept on the dry side for any reason, I should certainly remove any of these plants that chanced to be forming their spikes to warmer, because moister quarters.

With regard to root run for them, they are best grown in a rough and very open description of compost. Good peat-fibre and sphagnum in equal proportions should be mixed with nearly its own bulk of crocks, potters' ballast, or charcoal in lumps as large as a Walnut. The pot must be fairly large in comparison with the size of the plant, as the roots are strong and vigorous, and are better inside than rambling about over the outside of the pot. In repotting keep the leads fairly low down, as the plants are in the habit of pushing one pseudo-bulb considerably above the last one, and if too much elevated they soon get out of touch of the compost.

The typical *O. macranthum* (fig. 71) is one of the best and showiest of all, the flowers occurring in great numbers upon the scapes. The sepals are brownish yellow, the petals bright golden yellow, the lip purple with a white crest. Another beautiful kind is *O. serratum*, very similar in colour to the last named, the petals having the peculiarity of turning inward until they meet over the column. Others more or less similar are *O. chrysodipterum*, *O. luteus*, *O. hastiferum*, possibly a variety of *O. macranthum*,

O. superbiens, and *O. lamelligerum*. These it is hardly necessary to describe in detail, but one more at least is worthy of this, *O. undulatum*. A good form of this is a really beautiful sight when in bloom; the sepals are reddish brown, the petals pure white, streaked and spotted with yellow and purple, the lip deep purple, a truly beautiful disposition of colour.—H. R. R.

ORCHIDS AT ASTON HALL.

When visiting Aston Hall, Oswestry, some time ago, I was much struck by the fine collection of Orchids growing there. One house especially attracted my attention, it being almost entirely devoted to Cattleyas and Cypripediums, all of which, whether in or out of flower, are a picture of health, cleanliness, and high cultivation. Colonel Lloyd, who is a very enthusiastic gardener, has spared no pains in getting together not only a large collection but a choice one, and many rare kinds were to be seen in flower. Although the autumn Cattleyas were over the Cypripediums were just at their best, *C. Læanum* being in strong force. This beautiful variety appears to be a great favourite everywhere amongst



FIG. 71.—ONCIDIUM MACRANTHUM.

Orchid lovers. It resembles *C. Spicerianum*, but the scapes are rather longer. The flowers have an emerald green base and radiating mauve spots running upwards into the white parts, while the lip is of a shining brownish red. Amongst many others I noticed *C. Charlesworthi*, *C. violaceum*, and *C. Chamberlainianum*, all producing flowers of good size and substance.

Sophronis grandiflora is also grown remarkably well, and several plants were in flower. The Cattleyas were a picture to those interested in them, for never have I seen a healthier collection. No gardener need feel afraid at allowing his Cattleyas to shrivel in the resting season after the success that has followed that process at Aston. Mr. Townsend, the gardener, considers it is the making of them, and is not satisfied by allowing the bulbs to begin to shrivel before watering them, but allows them to get to such a stage as would frighten many an orchidist. Certainly it makes them break more freely afterwards, but few would care to follow it to such an extent.

Not only are Orchids a speciality, but also Roses and Chrysanthemums, and it is difficult to say which are done the best. The fact that Mr. Townsend secured the cup at Liverpool this last season with his 'mums speaks for itself; but the Roses have to be seen in their home before anyone is able to form an idea what they are like. Most of them are Teas, and, like the Cattleyas, are the strongest I have ever seen under glass. They are most of them grown in pots in a house between 60 and 70 feet long. The fruit trees indoors are also in good condition, and everywhere appeared in perfect order, reflecting great credit on the energetic gardener.—GEO. BURROWS.



“JOURNAL OF HORTICULTURE” EDITORIAL DEPARTMENT.—

From the present date, and until further notice, it is particularly requested that all letters and parcels intended for the Editor, also all communications for insertion in the “JOURNAL OF HORTICULTURE,” be addressed to S, Rose Hill Road, Wandsworth, London, S.W. N.B.—Business letters and advertisements must be addressed to the City Office.

— WEATHER IN LONDON.—Holiday makers have had to put up with some adverse weather this Easter, as they have had to do before and possibly will have to do again. There were glimpses of sunshine on Thursday, but Good Friday was a thoroughly wet day, while Saturday was very little better. Easter Sunday was a glorious day, and the hopes of the trippers rose proportionately, and were maintained until Monday evening when rain again fell. Tuesday was fine, and Wednesday damp.

— WEATHER IN THE NORTH.—The past week has embraced samples of all sorts of weather. A great deal of rain has fallen, and on the 14th heavy showers of snow and hail, with several loud thunder-peals, occurred. The hills all round were again covered with snow. The evening of Monday was very wet; Tuesday morning was bright and mild.—B. D., S. Perthshire.

— NEWCASTLE-ON-TYNE SUMMER FLOWER SHOW.—We have received a copy of the schedule of prizes to be offered for competition at the Newcastle Flower Show on Thursday, Friday, and Saturday, 8th, 9th, and 10th July, in the recreation ground. Since last year the schedule has been increased in several instances. The following are some of the principal prizes:—Roses, £75; table decorations, £23; Pansies, £14; herbaceous flowers, £13. The Committee has arranged to re-strike the medal of the Society, and gold, silver, and bronze medals are included in this year's schedule. Copies of the schedule may be had on application to the Secretary.

— LONGFORD HOUSE, ISLE OF WIGHT.—This, the private residence of Mrs. Rylands, is situated at the bottom of the village of Haven Street, and has a pleasant and extensive inland view. The gardens adjoining are under the capable management of Mr. J. Barkham, F.R.H.S. During a flying visit the other day I noticed a fine house of Cucumber plants, which were very prolific, producing from three to five fruits at a joint. The variety he informed me was a cross between Rochford's Seedling and Sutton's Improved Telegraph. Tomatoes in pots were bearing a good crop of well shaped, highly coloured, and excellently flavoured fruits. To tourists interested in gardening a visit to Longford House would amply repay them, and they would have a hearty welcome from Mrs. Rylands' able gardener.—S. H.

— DOBBIE'S DAHLIA BOOK.—This free rendering of the title of the first of Mr. William Cuthbertson's horticultural handbooks slides smoothly from the pen, as it will not improbably fall trippingly from the tongue when copies are being ordered by the “trade” for distribution among florists. It will be proper, however, to give the full title—“The Dahlia: Its History and Cultivation” (edited by Mr. W. Cuthbertson and published by Messrs. Macmillan & Co., Ltd., London, and Messrs. Dobbie & Co., Rothesay). The editor has written the preface, and pithily observes, “The florist differs from the botanist in his relation to plants. The plant as it is is the province of the botanist. The plant as it can be developed is the province of the florist.” In this handbook, then, may be found the development of the Dahlia. Mr. Richard Dean records its history, Mr. John Ballantine treats it botanically, chapters on propagation and exhibiting have been entrusted to Mr. Stephen Jones, and on cultivation to Mr. Robert Fife, while the editor has compiled the most complete catalogue in existence of varieties now cultivated by large growers, and from which excellent selections are given. Mr. Cuthbertson also writes hopefully of the future of the Dahlia, describing it as “without doubt the most perfect of Flora's creations from a true florist's point of view.” This handbook contains eighty pages of interesting, useful, well printed matter; also attractive illustrations, and will be acceptable to the Dahlia growing community.

— GARDENING APPOINTMENT.—Mr. J. T. Stoney, for the past two years foreman at Powis Castle, Welshpool, has been appointed gardener to H. B. Gilmour, Esq., Underlea, Aigburth.

— CERTIFICATED NARCISSI.—The Rev. G. H. Engleheart was awarded first-class certificates for both Narcissus Beacon and Narcissus Snowdrop, not awards of merit, as stated in our last issue.

— THE ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral meeting of the Royal Horticultural Society will be held on Tuesday, April 27th, in the Drill Hall, James Street, Westminster, 1 to 5 P.M. A lecture will be given at three o'clock by Mr. A. Dean on “Winter and Spring Bedding.”

— THE APPLE BLOSSOM WEEVIL.—This and other beetles injurious to the Apple are concisely treated in pamphlet form (Headley Brothers, Ashford) by Mr. Fred. V. Theobald, M.A., F.G.S., of the South-Eastern Agricultural College, Wye. It is in large part descriptive of the habits of the enemy, which punctures and ruins the blossoms; but suggested preventives as remedies are given, including kerosene emulsion, made as follows:—“Dissolve 2 lbs. of soft soap in 1 gallon of boiling water, then add to the dissolved soap 2 gallons of kerosene oil; churn the two well together until a complete creamy emulsion is produced. One part of this emulsion can be mixed with from forty to fifty parts of water. The concentrated emulsion will keep for some time.”

— A NEW INSECTICIDE—ARSENATE OF LEAD.—Mr. Theobald received this from the Report of a meeting of Australian fruit growers, and observes:—“This poisonous substance, used for spraying, seems to have many advantages over Paris green and other arsenites. As it is a more powerful insecticide than the other arsenites, it may have the effect of killing the adult weevils treated of here. It certainly kills an equally hardy weevil—the Corn Weevil (*C. granaria*), although it could not be employed for that purpose. Its great advantage is, that if properly proportioned it will not damage the leafage at all, however concentrated it is used. It is mixed in the following way:—Take 11 ozs. of acetate of lead and dissolve in 1 gallon of water, and 4 ozs. of arsenate of soda dissolved in the same quantity of water; then mix these two together, and pour into 100 to 150 gallons of water for use. The cost of this insecticide comes to about 4d. 100 gallons. It is successful in regard to leaf and bud-eating larvae, and is well worthy of a trial by all fruit growers.”

— EARWIGS FLYING.—Referring to the circumstance of the female beetles (*Anthonomus pomorum*) having strong wings, but seldom using them, Mr. Theobald points out that the common earwig (*Forficula auricularia*) has most ample wings, but so rarely uses them that he thinks the only instance of this having been observed is a record of his own in the Entomological Journal in 1896. If he had worked for many years in Dahlia plantations he might have seen dozens and felt them, too, if they had butted his eye. We have from time to time seen scores of earwigs use their wings years before the Entomologist's discovery, and so must have many gardeners.

— THE WEATHER AND FRUIT PROSPECTS.—The weather of late has been of a very cold and winterly character. The month was ushered in by a cold easterly wind, accompanied by driving snowstorms, the ground being partially covered in the early morning, followed by more or less of frost on most nights. On the 7th inst. there was a very winterly morning with a N.E. wind. Snow fell thick and fast for upwards of two hours, covering the ground nearly 2 inches deep, but it soon melted. On the 11th (Palm Sunday) 11° of frost were registered. On the 16th (Good Friday) the weather was of a very boisterous character from 3 to 4 P.M.; a heavy thunderstorm broke over this neighbourhood, the lightning was very vivid with heavy peals of thunder, followed by a downpour of rain and hailstones, which continued for about half an hour, the ground being quite white for a time. This produced 0.65 of water. It is twenty-one years since the memorable Good Friday when there was a deep snowstorm, and so much damage was done in this neighbourhood to many fine Cedars of Lebanon and other trees. Grave doubts are entertained as to the safety of the early fruit blossoms. It is feared that Gooseberries and Currants have suffered by the late frosts; the foliage has a pale and sickly appearance. Peaches and Nectarines on unprotected walls seem to have set fairly well, but Apricots are a failure. Plum and Cherry blossom is abundant, also early Pears, but a good deal cut by hailstones. The Apple blossom, still in embryo, we hope is safe, but the budding foliage has a sickly and bleached appearance.—G. R. ALLIS, *Old Warden Park, Beds.*

— **NATIVE GUANO.**—From the Native Guano Co., 29, New Bridge Street, Blackfriars, we have received a pamphlet containing sixty pages almost exclusively occupied by testimonials as to the quality of this food. There are letters from some of the best-known gardeners in all parts of Great Britain and Ireland, and the unanimity with which they agree as to the merits of the product is ample testimony of its worth.

— **PANSIES AND VIOLAS IN POTS.**—We have pleasure in sending you herewith a few blooms from our Pansies and Violas. The plants were potted in January, and have since been grown in a cool greenhouse, where they are flowering beautifully.—**DOBBIE & CO.** [We know how attractive these plants are when flowered in pots early in the season, but unfortunately the box of flowers posted on the 14th inst. did not reach us till the night post of the 20th, and were, as may be imagined, a mass of dry, crumpled, colourless lumps—in fact, dead.]

— **WHITE BROCCOLI.**—This term is very familiar, and was fully justified by the beautiful specimens exhibited by Mr. Empson at the Westminster Drill Hall last week. They were not large, but quite large enough, and not cream coloured, but a clear white, like Cauli-flowers. Whether they underwent any manipulative blanching process is not known, but whether they did or not, they were the whitest Broccoli we have seen of some thousands in London this spring. The variety was named Carter's Perfection, and the heads for closeness and purity would be hard to surpass.

— **HORTICULTURAL CLUB.**—The monthly dinner and conversation of the Club took place on Tuesday evening last, when there was a good attendance of members and friends. Mr. H. J. Veitch, Vice-Chairman of the Club, presided, and there were present Messrs. H. J. Pearson, Francis T. Rivers, H. Rivers, J. E. Cockett, J. Cockett, jun., H. Selfe-Leonard, James Walker, George Paul, C. E. Shea, J. Assbee, Dr. Ernest D'Ombraïn, H. A. A. D'Ombraïn, Philip Crowley, and the Secretary. A very interesting paper on the Flower Gardens of Victoria was read by Dr. Ernest D'Ombraïn of Melbourne, in which he showed how erroneous were the opinions often entertained in this country as to the soil and climate of Victoria. He also gave an account of plants and flowers which flourished best in the Colony. An interesting discussion followed the reading of the paper, and many questions were asked on some of the points elicited by the lecturer, to whom, on the motion of Mr. Veitch, a cordial vote of thanks was given. We hope to give this paper in a future issue. Thanks were also given to Mr. Geo. Mount for some beautiful Roses which he sent to decorate the table.

— **REPORT OF TOMATO CULTIVATION.**—Mr. W. Neild, F.R.H.S., has furnished a report, as indicated, to the Cheshire County Council, as founded on experiments conducted at the Agricultural and Horticultural School at Holmes Chapel. The varieties grown were the Hackwood Park and Neild's Seedling, the last named having been granted an award of merit in the Chiswick trials last year. Mr. Neild seems to have been surprised by the result of ten experiments in manuring. Of these it may be briefly said that a mixture of nitrate of soda and muriate of potash, nitrate of soda alone, and sulphate of ammonia alone, had the best effect. He goes on to say, "Potassic manures have long been considered the best for Tomatoes, and yet when muriate of potash was applied by itself it proved to be a failure." In the first place we doubt if potash alone, and in the absence of other food essentials, has been recommended as the "best" manure by any competent adviser. These Cheshire experiments have not proved the inutility of potash in the least. Had the plants and fruits been analysed it would have been discovered that they had obtained all the potash they required where there was sufficient available nitrogen in the soil to enable them to benefit by it. Mr. Neild has really discovered that the "heavy and rather adhesive" soil contained an ample store of potash (as such soils often do), while light or sandy soils are as often deficient. This is represented in Mr. Dyke's table on page 312 last week, and he also shows that the soil in which muriate of potash had no effect might even contain potash at the rate of 24,900 lbs. per acre in a depth of 9 inches, but lying comparatively inert by lack of sufficiency of available nitrogen. He has also discovered that his soil is deficient in active nitrogen, and there are thousands of acres of land in much the same condition. Some of the finest crops of Tomatoes, averaging 22 lbs. a plant, were grown in sandy soil, and muriate of potash was a chief factor in their production; but though it was not given alone they could not have been produced without it in such soil. Referring to size of fruits, Mr. Neild found that in nearly every instance smooth medium-sized samples realised from 1d. to 2d. per lb. more than the larger fruits did. He also gives excellent advice on preparing and packing fruits for market.

— **THE ROYAL GARDENERS' ORPHAN FUND.**—We have the pleasure to announce that Mr. Leonard Sutton of Sutton & Sons, Reading, has very generously sent a donation of £100 to the Royal Gardeners' Orphan Fund. We are requested to remind our readers that the annual festival dinner of this charity will take place on Friday, April 30th, at the Hotel Cecil, Charing Cross. Gentlemen who may be desirous of attending the dinner will please communicate with the Secretary (Mr. A. F. Barron, Chiswick), by whom donations to the Fund are most thankfully received and gratefully acknowledged.

— **HESSLE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.**—The annual dinner of the above Society took place on Monday, April 12th when the chair was occupied by W. J. Wharwick, Esq., President of the Society. Upwards of sixty members and friends partook and thoroughly appreciated the good fare provided. The usual toasts were submitted and duly responded to, including that of the "Press," both the local and the *Journal of Horticulture*. A capital musical programme was most ably rendered by Mr. A. Newton's Kingston quartette party, who displayed exceptional ability in entertaining. Collections were made on behalf of the Gardeners' Orphan Fund and the Gardeners' Royal Benevolent Institution. The National Anthem brought to a close a most enjoyable evening.—F. L. T.

— **EASTER IN THE ISLE OF WIGHT.**—At this festive season there is a great demand for flowers in all parts of the island, and it undoubtedly behoves florists to cater sufficiently for the public wants, and if possible to have such a show of bloom in their shops that passers cannot resist the temptation to buy. This idea is adopted by Mr. Walter Gihson, Sandown. Anyone who passes the shop in High Street will see a miniature flower show of excellently grown, well bloomed, and nicely arranged *Lilium Harrisii*, *Azaleas*, Tulips, Lily of the Valley, and *Polyantha* Roses, with foliage plants intermixed, which gives the whole a tropical appearance. It is patent to all that the florist or fruiterer can draw or drive customers away to a large extent by the way in which his goods are exposed for sale.—S. H.

— **SCHIZOCODON SOLDANELLOIDES.**—It is surprising that this plant, of which a figure is given on page 323, has not found its way more generally into cultivation in England. It is offered in the Japanese nursery catalogues, both at Yokohama and Tokio, at a price equal to about 2d. a plant, and the transmission by parcel post costs 1s. 10d. for 3 lbs. weight, and is performed in a time which brings these plants to England alive. I had some plants imported and given to me by a friend, but I am afraid I shall not succeed with its cultivation, as *Shortia galacifolia* and *Galax aphylla*—the two plants most nearly allied to it both in nature and habit—fail utterly here. It would probably succeed in Mr. G. Wilson's garden at Wisley, where the two species I have mentioned above thrive admirably. Now the plant can be obtained so easily and cheaply, it is to be hoped we shall soon know more of the circumstances and surroundings necessary for its successful cultivation.—C. WOLLEY-DOD.

— **CARROTS.**—I am hoping this season to be able to get a pretty correct line as to the diversities or otherwise that may exist amongst Carrots, having sown seed on excellent sandy soil of both British and French nomenclature. That some of these are identical, though not in name, there can be no doubt—indeed, the packet illustrations of the French stocks show exactly what these varieties under French appellations are of British designation. The former nomenclature, however, is not suited to our tastes, as too long and descriptive. For that reason we cannot complain if British seedsmen give to the stocks British appellations; but could wish they would be unanimous in adopting the same designation, and not employing a different one in every diverse catalogue. British seedsmen, no doubt appreciating home growers' tastes, keep almost exclusively to red varieties. The French not only grow all these, but pink, lemon, and white ones also. Even the long red coreless, or soft-fleshed sausage-shaped Carrot does not seem to be on offer here. I have this variety sown, as also white, lemon, and pink-rooted varieties. Gardeners generally limit themselves to the early French Horn, otherwise Early Gem, or Early Forcing for frames; Champion Scarlet, or Scarlet Model, and St. Valery, otherwise New Intermediate or Matchless. The long Altrincham and Red Surrey are much less grown. No doubt the three varieties named serve every useful purpose in gardens, and are the best of the batch. None the less we may not shut our eyes to the merits of other varieties that have features of special excellence. It is one of the great merits of the Carrot that we can have it in good form literally all the year round.—A.

— **HAMBURG EXHIBITION.**—We are informed that at the Hamburg Exhibition, extending throughout the summer months, prizes to the amount of £7500 will be given. This considerable amount has been raised by subscription, the Emperor and many nobles, besides the officials and citizens of Hamburg, having given substantial assistance. In addition to money prizes several medals will be awarded. English visitors must remember that the next show opens on May 1st. The route by Great Eastern Railway and General Steam Navigation Co.'s express trains and magnificent steamers will be found quick and comfortable.

— **SHOWS AT CARDIFF.**—Two schedules of shows to be held in Cardiff during 1897 have reached us. One is of the Cardiff and County Horticultural Society, whose exhibition will be held on August 11th and 12th, in the Sophia Gardens. The classes are numerous, and the prizes, as a rule, high, at least sufficiently so to promise a first-rate show. Schedule No. 2 is of the Cardiff and District Chrysanthemum Society, of which the show will be held in the Park Hall on November 3rd and 4th. There are open and restricted classes, and it is to be hoped that the exhibition will be an unqualified success.

— **SUTTON'S AL KALE.**—When at Woodside, Farnham Royal recently, I saw a breadth of this wonderfully fine green Kale, with respect to which it was not at all needful for Mr. James to draw attention and to praise it. The breadth told its own tale. The variety is of the tall Scotch character, but has leafage much more densely set on the stems, and carries a thick massive head. How different in this respect from the comparatively thin-leaved head of the common form. But the great feature of the Al variety is its wonderful sprouting qualities, for the stems are so thickly coated with sprouts that it is difficult to keep them fully hard gathered. Whilst pieces of common Scotch in other gardens were stripped bare this greatly improved form was giving a literal wealth of early sprouts. It is a grand addition to our late winter garden Kales.—A. D.

— **"FLORILEGIUM HARLEMENSE."**—Such is the title of a work of which we have received two parts, after the style of the "Album Van Eeden," that is now being published under the auspices of the "Algemeene Vereeniging Voor Bloembollencultuur" at Haarlem, Holland. The plates are magnificent chromo-lithographs after well known Dutch artists, and the admirably written letterpress accompanying each is given in four languages—Dutch, English, French, and German. The pictures are almost perfect portrayals of life, and editors in their selection, artists in their paintings, and printers in their reproduction are deserving of every congratulation and support. The plates, which are all of bulbs, as is inferred by the title, that have already appeared, are as follows:—Hyacinth La Grandesse; single Tulips, Keizers Kroon, Pottebakker white, Proserpine and Vermilion Brilliant; Narcissus pseudo-Narcissus maximus, bicolor Horsfieldi, and moschatus albicans; Hyacinth, Gigantea; single Tulips, Chrysolora, Canary Bird, Wouwerman, and L'Immaculé; and Fritillaria imperialis rubra maxima. The work will appear in four parts yearly, the annual subscription being 15s., and a specimen copy may be had free on application to the publisher, De Erven Loosjes, Haarlem, Holland.

— **HARDY FRUIT BLOOM.**—Whatever may be the ultimate product it is certain that fruit trees on every hand are making a magnificent floral display. It will be interesting later to compare results with present promise when the annual fruit census is taken. Pears are universally blooming, almost marvellously, the flowers being so densely set on many trees that little but the bloom is seen. A remarkable sight just recently has been Mr. W. D. Blackmore's garden at Teddington, where the many trees of free growth tower up above the enclosing walls, and show every one irrespective of variety literally a mass of bloom. Whether this abundance of flower is good or the reverse remains to be seen, but there have been previous seasons when such great masses of bloom were seen and the fruit product has been indifferent. The present abundance has had in its favour abundant moisture, whilst the individual flowers are large. Some no doubt have suffered from frost, but the greater portion has escaped harm. It is nothing new to see Cherries blooming profusely. The trees nearly always do so, yet the fruit crop appreciably varies. Much now depends on the nature of the weather for the next week or two; at present it is wild and stormy, and not all that can be desired. Plums are blooming moderately. The trees will no doubt carry an ample crop of their soft fruits without being unduly exhausted. As for Apple trees, they will in every direction be grand masses of colour in a few days, and so far no harm has been done. The present prospect for a fruit crop is of the very best.—D.

— **SOUTHPORT AND BIRKDALE GARDENERS' SOCIETY.**—A copy of the annual report of the Mutual Improvement Department of this Society has reached us. From this it appears that excellent work is being done in diffusing knowledge on practical points in gardening by the aid of papers by men thoroughly versed in the best methods of procedure. Such societies as this do a great amount of good to the world of gardening, and are deserving of all support. The Secretary, Mr. H. R. Goddard, having resigned, Mr. J. E. Swift was elected to fill the vacancy, and his address is 11, Pine Grove, Southport.

— **UNWELCOME GUESTS.**—Messrs. Laing & Mather, the well-known nurserymen of Kelso-on-Tweed, are renowned for the courtesy with which they greet visitors, but they have recently had invaders who were decidedly unwelcome. They came in the form of voles or field-mice, which mustered an army, and ate out the points of a plantation of two-year-old Scots Firs. The firm, not being sure of the cause of the trouble, sent specimens of the damaged stock to Mr. Malcolm Dunn of Dalkeith, who pronounced the enemies to be voles. Traps were set after the whole of the damaged trees had been burned, and a good "bag" was the result. We trust Messrs. Laing & Mather will come off victorious in their war with the rodents.

— **SEAKALE.**—Mr. C. Herrin is so much impressed at Dropmore with the exceeding value of a good supply of Seakale roots for forcing and blanching, that he puts out annually several thousands of root cuttings, quite a large breadth of ground being thus occupied. Blest, indeed, is the gardener in winter who has his quiver full of Seakale roots, for he can run a supply of the delicious blanched heads for a period of six months with the least possible trouble. None is blanched in the ground at Dropmore, because such methods would interfere with the routine of cropping in the spring. The latest can easily be blanched with the aid of leaves only, and it is so produced beautifully white and perfectly developed. It is surprising that the production of big breaks of Seakale roots in this way is not common practice in every large garden.—A. D.

— **SUTTON'S FAVOURITE CABBAGE.**—This compact, firm, tender looking little Cabbage, as exhibited at the Drill Hall last week by Mr. G. Wythes, was, as stated in our report of the meeting, admired by many visitors. At this season of the year, when the ordinary winter Greens are as a rule getting exhausted, or the flower stems tough and stringy, a supply of such Cabbages would come as a boon to many a gardener. Mr. Wythes showed one of the plants as drawn from the ground, and it was scarcely less remarkable for its short slender stem than for its close shapely head, with the fewest possible loose leaves for removal. Dwarfness is, however, very much a question of thin sowing and intelligent management. The Cabbages were only a little larger than good sized plump partridges. We do not know Mr. Wythes' planting distance, but it is certain that he could have grown them as they were by allowing each plant a square superficial foot of space. Cabbages decidedly inferior to those in question have been selling freely in London, and are yet at 1½d. each. An acre of the Wythes brand, if fortunately free from blanks, would at 1d. each be worth upwards of £180. There is thus money in Cabbages when full crops of the right sort are placed on sale at the right time, and that is when London is hungering for the first spring supplies.

— **SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.**—The Secretary of this Association, which has now reached its eighth year, has forwarded to us the Bulletin of 1896, and if judgment were passed according to the size of the book the verdict would be distinctly favourable, as it reaches a total of 140 pages. The favourable impression created by the clear printing on slightly toned paper is justified on a perusal of its contents, which are very interesting. The frontispiece is a speaking likeness of the indefatigable President of the Society, Mr. G. Schneider, better known to English gardeners as the genial, versatile, and courteous Frenchman who so admirably presides over the Fern department in Messrs. J. Veitch & Sons' Chelsea nursery. The Hon. Secretary, Mons. Louis Gentil, has written in a graceful, pleasing style of Mr. Schneider's life and work, paying thoroughly deserved compliments to the author of "The Book of Choice Ferns." The general report by Mons. René Moser tells of good work well done, and looks hopefully to the future. Reports are given of the various meetings that have been held during the year, while Messrs. L. Pynaert and L. Gentil in collaboration have written an extremely interesting account of Messrs. J. Veitch & Sons' (Ltd.) various nurseries. The bulletin is entirely satisfactory, and we wish the Society increased success and prosperity in the future.



ROSE SHOW FIXTURES FOR 1897.

- June 10th (Thursday).—Ryde.
 „ 18th (Friday).—Portsmouth (N.R.S.).
 „ 24th (Thursday).—Colchester.
 „ 26th (Saturday).—Windsor.
 „ 29th (Tuesday).—Canterbury, Sutton, and Westminster (R.H.S.).
 „ 30th (Wednesday).—Croydon, Ealing, and Reading.
 July 2nd (Friday).—Crystal Palace (N.R.S.).
 „ 7th (Wednesday).—Glasgow, Hanley,* Hitchin, Reigate, and Tunbridge Wells.
 „ 8th (Thursday).—Bath, Gloucester, Harrow, and Woodbridge.
 „ 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 „ 22nd (Thursday).—Halifax and Trentham.
 „ 27th (Tuesday).—Tibshelf.

* A show lasting two days.

The above are the only dates that have as yet reached me. I shall be glad to insert in the next list, which will be issued early in May, any further fixtures that may be sent me, whether of Rose shows or of horticultural exhibitions where Roses form a leading feature.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

SPRING IN LONDON.

Go where you will, either in the heart or the environs of the great city, which annually is stretching its mighty arms further and further into the country, and you will find unmistakeable signs of spring. Battersea Park in the south-west, famous for its tropical gardening and spring bedding, is assuming an appearance both green and refreshing. Summer bedding is the principal feature at Battersea, and bulbous flowers are not grown in such large quantities as in other of the metropolitan parks. Moreover, classification is not aimed at to any appreciable extent, yet planted as mixtures Hyacinths and early Tulips make a showy effect.

At one point, encouraged by the sunlight, red and yellow Tulips occupying a number of beds look very pleasing at the time of writing, and these are surrounded by other narrow plantations of mixed Hyacinths and that showy Tulip *Keizers Kroon*. From another point one notices long lines of Hyacinths, which have been gay for some time past, and along the herbaceous borders little clumps of Tulips and Hyacinths seem to present themselves at every turning. Springing here and there out of the grass are clumps of Daffodils, and on seeing them any Daffodil lover would say, Why is not more of that done? Under such circumstances certainly the nodding Daff shows itself to great advantage, and on the grassy banks and broad stretches of turf which Battersea Park possesses one sees a picture that might be further beautified by the presence of an abundance of these charming flowers. Along the borders herbaceous plants are springing, and in the shrubberies one notices the showy flowers of *Pyrus japonica*, Flowering Currants, and yellow Forsythias. Grass is growing freely, and though the show of spring flowers is not unusually large, thousands of the inhabitants of this rapidly growing suburb daily pause to admire as they pass on foot or on wheels along the broad, firm drives and walks which in themselves are a feature in Battersea Park.

Right on the other side of the modern Babylon lies Victoria Park, the favourite playground and garden of the teeming population who eke out a likelihood amongst the busy surroundings of East London. The contrasts are truly striking. One minute you are in a narrow stuffy street, lined on either side with overcrowded habitations, and breathing an atmosphere which never seems to get clear. Out of the street and through the gates you find yourself seemingly in another world, for there the trees grow, the flowers bloom, and the birds sing, and for the time being you are oblivious of the strange vicissitudes of human life which lie all round you. In the street you would think signs of spring could never penetrate that locality; but in the Park a different aspect appears. Spring flowers are all aglow, green leaves are bursting forth, grass is springing, and one feels thankful that Nature so readily beautifies amid surroundings where beauty is unknown.

Spring bedding in Victoria Park is always a feature, and this year the display of bulbous flowers is quite up to the usual standard, though the recent cold weather has been the means of retarding their progress. The main portion of the flower beds are admirably situated in a conspicuous position near one of the main entrances. Here the flowers show to advantage their variety of delicate colours in the sunlight. Hyacinths, Tulips, and Daffodils are admirably blended, though among the former one can notice traces of the sharp frosts which have recently prevailed. To mention varieties is but to go over the same ground again, for all those of well tried merit are to be found there. Workmen as they pass homeward through the Park, and others who come out for recreation, pause to admire and pass opinions on the flowers individually and collectively. Conspicuous as are the bulbs at this point it by no means

exhausts the display, as at almost every turn you come across masses of Hyacinths and nodding Daffodils.

Wallflowers are opening and Polyanthus commencing to bloom, in spite of the attacks of the London house sparrow, who appears to have a special liking for these flowers. Shrubs of hardy floriferous nature are making known their presence in the display of bright blossoms, and everywhere, in spite of smoke and gloom, one sees the unmistakeable evidence of a bursting into new life. Improvements, too, are also apparent, and the winter has been spent in the formation of a broad firm carriage drive, which penetrates through a portion that hitherto was bare, and had a most uninviting appearance. Great tracks of bare ground on each side have been fenced in and sown with grass seeds, and what was once nothing better than a quagmire of mud will in time be transformed into a stretch of green turf unsurpassed in any park in the metropolis. These improvements testify to the energy of the superintendent and the efficiency of the staff, and one cannot speak too highly of the effort made to beautify a park that is such an unquestionable boon to this crowded locality.

A walk round many of the adjacent enclosures, such as the clean and admirably kept old and new gardens at Bethnal Green and other open spaces that a few years ago were nothing more than an eyesore is not without interest, as they are in a smaller way now bright with the flowers of the spring. The London County Council has so many of these pleasant enclosures—for they may be justly so called—that it would take too long to notify them; therefore we will turn to South London, where we find a park of quite a different character. The park at Peckham Rye is of recent construction, speaking comparatively, and has an air of rustic nature about it that one does not find elsewhere. One looks in vain for large plantations of Hyacinths and Tulips, as bedding is not the predominating feature, but the little Winter Aconite appears here to tell of spring, and later the Bluebell, the Forget-me-not, and wild Parsley present themselves in profusion under the shade of the overhanging trees. Then there are the Hawthorn bushes with their wreaths of pink and white blossoms all in prospect, and a long time to come wild flowers of the character named will follow each in close succession. The garden portion tells of skill and attention, and one notices alterations and improvements that have been made to advantage. Wallflowers are opening and hardy flowering shrubs are all aglow, while on the giant trees all round a canopy of leaves is rapidly appearing, which when complete will put a finish on the woodland appearance of Peckham.

Not far away the undulating surface of Brockwell Park is looking fresh in its mantle of bright green, and near the entrances this is relieved by plantations of spring flowers. The old walled-in garden in the centre, which always seems to contain something to give pleasure to the thousands who wander round its complication of walks, is not without its features of interest, even at this early season, and though perhaps the herbaceous and other old-fashioned flowers which bloom later are more in keeping with the place, yet the gems of the spring cannot fail to attract admiration. Turning to Southwark Park, we find a display of bulbous flowers which is evidently appreciated by the inhabitants of that crowded locality. Hyacinths, Tulips, and Daffodils make up the show, the varieties of course being similar to those in other parks.

Across the great city once more to Finsbury, the well-known park of North London. Here again we find abundant signs of spring in the profusion of bulbous flowers, the bursting vegetation along shrubbery and border, and the increasing verdant appearance of the lawns. As in all these public playgrounds the same kinds of bulbs are used for the spring display, the difference alone lies in the methods of arrangement. Attention and good taste, however, are everywhere apparent, and it would hardly be fair to close these rambling recollections of a walk round the London parks without saying a word in favour of Messrs. J. Carter & Co., who supplied the whole of the bulbs by contract for the Royal parks. The task is no light one, and the general excellence of the flowers everywhere reflects great credit on the firm.—G. H. H.

LATE APPLES.—I was surprised to read the other day a note from a well-known southern gardener deprecating of Bramley's Seedling Apple as a standard variety. Perhaps this depreciation is due to the fact that the writer cultivates a somewhat sandy soil on gravel, and whilst some Apples do well on it Bramley's may prefer a stiffer compound. That it does thrive well on strong soil there can be no doubt, and perhaps likes a cooler temperature than the South furnishes. It would be well, in view of the note referred to, if some practical information could be obtained as to what soil and situation suits it best. When we hear of standards thriving luxuriantly and cropping heavily in an Osier bed in the Midlands it is natural to conclude that Bramley's is at once a deep rooter and a glutton for moisture. Lane's Prince Albert, Wellington, Alfriston, and other fine late varieties do well on the gravelly soil referred to. No doubt for such comparatively shallow soil the one named is the very best, because it is far from being a gross grower, and whilst a heavy cropper can be so readily fed from the surface. But we have undoubtedly in Prince Albert and Bramley's two of the finest average croppers and late keepers to be found. The former is better for gardens, the latter for orchards. Still it is desirable to learn if its average conduct on shallow soils, especially that because coming from the Midlands with such a high reputation we have been universally recommending wide planting. It is so important that in this matter there should be no mistakes.—A. D.

CROCUSES.

I WOULD revert to *Colchicum fasciculare*, which was mentioned in "Hardy Flower Notes" in the Journal of March 4th (page 176). Mr. Baker, with his uniform courtesy and kindness, lost no time in deciding the question submitted to him and in communicating with the writer. From his reply it appears that we are to regard the charming little *Colchicum* received as *C. fasciculare* as *C. bulbocodioides*, *M.B.* (*C. montanum*, *Linn.*, *ex parte*). Mr. Baker says that Boissier separates *fasciculare* as a species, but that he "cannot make more of it than a variety of *montanum*, distinguished by its very numerous flowers with very narrow segments." The writer is personally under an obligation to Mr. Baker not only for this statement but also for the information that this Meadow Saffron is found near Aleppo.

The same notes also contained a reference to some selected varieties of *Crocus Imperati*, a valuable, beautiful, and comparatively cheap early-flowering species of *Crocus* not nearly so well known as it ought to be. As may be supposed, these selected varieties are more highly priced, and they are again mentioned for the purpose of sparing the purses of some who might desire to possess them. The writer is indebted to the Rev. C. Wolley-Dod for the information that imported corms of this *Crocus* from Italy yield flowers varying not only in colour but in time of flowering. The purchase of some from an Italian firm entirely confirmed this, and not only are there flowers among this lot of several shades of the purplish colour which has few counterparts in its season among the genus, but also blooms of the varieties known as *longiflorus*. Some of these are quite as deep in colouring as one bought as *C. Imperati longiflorus purpureus*, and there are also late-blooming forms without the black stripes on the fawn colour of the exterior which are commonly present on this *Crocus*.

One bought as *C. Imperati longiflorus unicolor* is of this class, and could be duplicated among the imported flowers. These selections are useful for those who wish a clump of exactly the same appearance and blooming all at once. However, the difference in price is very great, as the typical *Imperati* can be bought in this country at from 2s. 6d. to 5s. 6d. per 100, and these varieties cost from 6d. to 9d. each, which makes them about 50s. to 75s. per 100. Even with a liberal discount for a quantity the difference is enormous. This is a *Crocus* which, like the well-known Dutch florists' varieties, should be planted in generous numbers. If planted in large clumps a quantity of *Crocus Imperati* of the mingled varieties would be very pleasing, giving flowers some seasons from New Year's day until well on in March.

Distinct enough, however, to plant by itself, and not dear at last year's price of about 6d. each, is *C. Imperati albidus*, sometimes offered as *C. I. albus* and *albiflorus*. This is almost pure white, but the interior has a few pale purple lines and the exterior is feathered with black. It is one of the coveted flowers with which the writer has had to exercise some patience, and upon which money was spent when it was higher in price than now, only to lose it before coming into flower. One can only hope that the better fortune recently experienced may be continued, and that in years to come we may still be rewarded by the sight of its pretty blooms spread out almost flat in the sun. This does not always come to cheer us in the first months of the year, but when it does come there are flowers to respond to its advances, flowers whose beauty is not to be measured by their size.—S. ARNOTT.

BOUVARDIAS FOR PROFIT.

"NOT much profit about Bouvardias," will be the ejaculation of some of my readers who have not succeeded in growing them satisfactorily, and they will be right. They are profitable under certain conditions only. If it is a question of sending so many boxes of cut flowers to Covent Garden, Manchester, Glasgow, Birmingham, Bristol, and other glutted centres, then there is little or no profit attached to the undertaking. My first season with Bouvardias on a large scale proved this. We were fairly successful in flowering the plants of good market varieties through the late autumn and winter months; but 3d. and 4d. per dozen sprays is not enough. It was not a "losing game," but other plants—Carnations for instance—would have paid us much better.

At 6d. per dozen sprays they pay very well, or say 6d. per plant the first year, and about 9d. the second season. Let me, however, warn beginners not to rush headlong into Bouvardia culture on the strength of my estimate, or they may meet with disappointment. It is not everyone who can grow them successfully; and another question is, Where are the best prices, or those stated, to be obtained? Not in any open market, or of many florists on a large scale, as these latter are only too well "posted up" as to the current prices at which they can get all flowers in

season. We sell to the smaller florists, more especially those doing a good trade with buttonhole bouquets and the like, and who are always glad to have boxes of suitable mixed flowers at reasonable prices. They readily pay 6d. per dozen, and get rid of fairly large quantities too. Bouvardias ought certainly to be cultivated by those who do a retail as well as wholesale trade, and in this case 1s., sometimes 1s. 6d. per dozen are made of the sprays or trusses.

We will first determine which are the varieties of Bouvardia best adapted to market culture and then enter into cultural details. The single flowering varieties are very pretty, and, as a rule, most floriferous. Unfortunately they do not last well, and are going out of favour accordingly. *B. Humboldti corymbiflora* is perhaps the most beautiful variety in cultivation. It belongs to the *jasminoides* type (fig. 72), and produces trusses of long tubular, pure white, sweet scented flowers freely in the autumn and up to midwinter. The habit is compact and good, and it transplants readily. This variety it is which we frequently see most effectively in wreaths, crosses, and bouquets. The flowers do not last long. Purity, a comparatively new form of *Humboldti*, possesses all its good qualities, and in addition the flower tubes are shorter and stronger. Mrs. Robert Green, a salmon pink variety with compact trusses, proves to be very popular with the ladies, and as the plant is of a robust, floriferous habit of growth a few of it may well be grown. President Cleveland is the best single scarlet I know, this having superseded elegans; while Vulcan, crimson, and Vreelandi, white tinged with pink, are also good.

The bulk of our plants, for reasons already hinted at, are of double flowering varieties. Alfred Neuner (fig. 72), white, and President Garfield, pink, are in most demand, and the best to grow extensively, while Victor Lemoine, scarlet, may well be given a trial. Whites, in the case of either single or double flowering varieties, should always predominate to the extent of three to one, as there are so many more ways in which these can be employed.

When I commenced Bouvardia culture for the markets six dozen well-grown plants set with flower trusses were purchased from a London firm in the autumn. The flowers sold from these paid for the plants, and we had a stock to propagate from. I may also be allowed to add that newly rooted plants in thumb pots will soon be offered by specialists at cheap rates, and these can be grown to a serviceable size by the autumn. After the plants have been cut over once it seldom pays a market grower to keep them on the chance of cutting a few late trusses. The space can be better employed, and the plants seldom produce good cuttings in quantity unless rested for a month or so. If the plants have been flowered in a temperature of 55° to 60° place them in cooler quarters for a time, but those flowered in a warm greenhouse need not be moved out unless the room they occupy is wanted for other purposes. In either case give much less water than previously, but they must have enough to keep the wood plump and the roots alive.

Supposing cuttings are desired a light pruning or a mere topping may follow this rest, and the plants early in February be transferred to a Cucumber house or other warm, moist quarters. syringing them frequently. They will quickly break strongly, and according as the shoots attain a length of 2 inches take them off with a heel of old wood attached; or, if a large number of cuttings are desired, the young shoots may be allowed to grow to a length of 3 to 4 inches and the tops be taken off and rooted, while more cuttings will be quickly produced on the reserved portions. For the cuttings fill well drained 5-inch pots with a mixture of fine loam and leaf soil in equal parts, with sharp sand added. Fix the cuttings firmly round the sides of these, and plunge the pots in a brisk bottom heat and close frame.

Kept uniformly moist, and carefully shaded from bright sunshine, roots should form in about three weeks, when they ought to be taken out of the frames and arranged on a staging or bed in heat. Top early, and when breaking afresh place the plants singly in 2½ inch pots, using soil as recommended for the cuttings. Young plants must still be kept growing in heat and a light position. Top them again when the shoots are 2 to 3 inches long, and soon after shift into 5-inch pots. For this, the final shift, use rough fibrous loam, or the best procurable, at the rate of two parts to one of leaf soil, with a little finely decayed manure, sand, and small charcoal added, and pot firmly. At this period of their growth they may be arranged on a bed of ashes in shallow pits or frames. They should be kept somewhat close for about a week, watered sparingly till fresh roots have formed, and be syringed once or twice daily. Bashy plants may be formed by topping the plants as often as forward enough, ceasing towards the middle of August.

Another good method of growing strong flowering plants is to top twice, and instead of persevering with this topping peg down the growths carefully to the soil. This causes strong sucker growths to spring up in the centre, and which, if left to their full length, branch and flower freely—a more continuous supply of bloom being had in this way.

We have yet to discuss the treatment of old plants, and allusion must also be made to the method of propagating by means of root cuttings. After all the cuttings needed have been obtained, the previous year's plants, and, if need be, the best of the older ones,

out of their pots, and shake or fork away the greater portion of the soil from the roots. It is then when root cuttings may be taken without injury to the plants, but it must be added they can be had much earlier from old plants that it is intended shall be

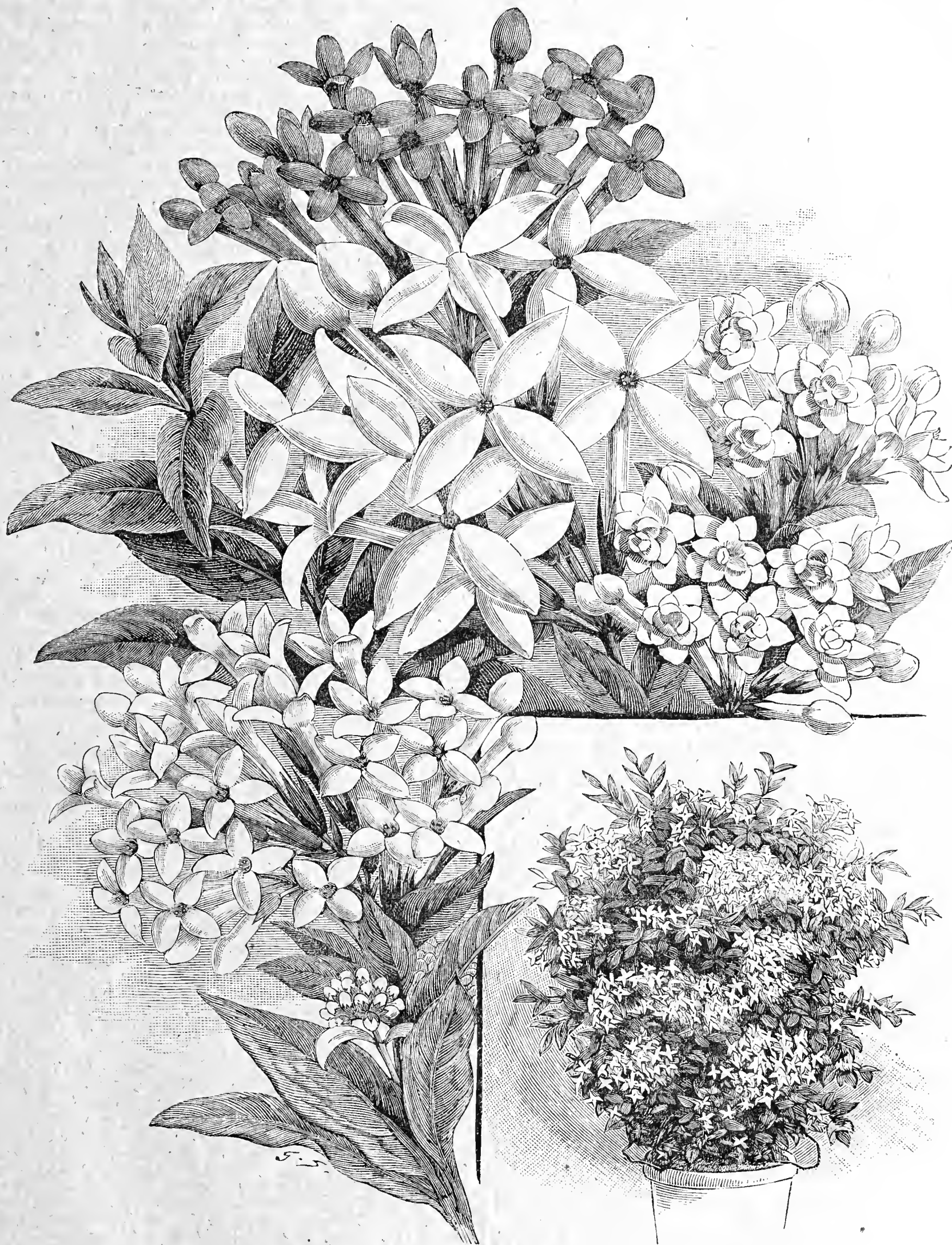


FIG. 72 —BOUVARDIAS.

should be taken in hand. If not already freely shortened back, cut them over again, much the same as a Fuchsia would be pruned. They quickly recommence top growth in a gentle moist heat, and when the shoots are one-eighth of an inch in length turn the plants

thrown away soon after flowering. Every short length of strong root with a few fibres attached may be dibbled thinly in pans or pots of soil as recommended for cuttings of young shoots, leaving only just the top or thicker end showing. Plunged in a brisk

bottom heat these root cuttings soon form shoots, and the plants may then be potted singly and treated similarly to the ordinary rooted cuttings.

After lightly trimming the remainder of the roots on the shaken-out plants, return them to pots just large enough to hold them comfortably, and place the plants in gentle heat for a few days. Directly root action has recommenced remove the plants to warm pits and frames, shifting them into pots two sizes larger before they become root-bound. Top sufficiently often to make them bushy.

Young and old plants alike must have abundance of air during the hottest part of the year, drawing the lights clear off during mild nights, and blocking them up over the plants, also shading lightly on bright hot days. They must have abundance of water when growing, and towards the autumn liquid manure also freely, though not in strong doses. House the plants before cold weather sets in. They will flower best in a warm greenhouse, or a temperature of from 50° to 55°, and may be introduced from rather cooler quarters in batches. Green and black fly, red spider, and thrips are all enemies to Bouvardias. Tobacco smoke or nicotine vapour will do good service in keeping down the aphides and thrips, and if ordinary syringing will not ward off red spider, introduce a handful of flowers of sulphur into the syringing water, and well coat the under side of the leaves with this.

Private gardeners will wonder why no allusion has been made to the plan of planting out Bouvardias during the summer. I am no stranger to this practice. It is not one to commend to the notice of market growers, labour-saving as the practice may be. They do well in pits, frames, or beds of moderately light, rich soil, and strong plants result. When these come to be lifted in the autumn they must have pots altogether too large to please market growers, who prefer handier sizes for their Bouvardias and other plants. Let those who prefer this method of culture give the readers of the *Journal of Horticulture* the benefit of their experience. Perhaps my views are incorrect, and there is "something in it" after all.—MARKET GROWER.

FRUIT GROWING ON CHALK.

AS those who have had practical experience are fully aware, the successful cultivation of fruit on soils in which chalk greatly preponderates is far from being an easy task; indeed, it may appropriately be described as uphill work from beginning to end. Should the attempt be made to grow fruit in the ordinary way—i.e., planting a tree and expecting it to flourish without anything further than the customary training, pruning, and autumnal mulchings of decayed manure, signal failure in the majority of cases is almost certain to ensue. This, of course, applies to soils of the very worst description, and to such fruit trees as Apples, Pears, Plums, Apricots, Peaches, and Nectarines. With small fruits, such, for instance, as Gooseberries, Currants, and Strawberries, the case is somewhat different, owing to their being mostly of a surface-rooting habit; still even with these more than ordinary pains are needed to insure profitable and satisfactory results.

The foregoing, it must be admitted, is simply the gloomy side of the question. It must not for a moment be supposed that success is impossible, or that such a thing belongs only to soils of a more genial character than those with which we are now dealing. "Where there's a will there's a way," is an old adage, and one certainly which applies with a certain amount of force to fruit growing on chalk. It is astonishing what a person may accomplish if he only has the will, receives encouragement, and determines not to be conquered in the struggle. That fruit trees may be made to flourish on extremely chalky soils will not admit of any doubt, but to accomplish this I must confess is a somewhat costly and laborious process. The last course to adopt where failure has hitherto been the only result is to make a fresh start and plant only young trees, say two or three years old, not more than four certainly. Previous to planting, trench the ground to a depth of 18 inches, and as the work proceeds work in a liberal dressing of well-decomposed manure and any decayed vegetable matter there may be from the refuse heap. Ashes from the burning of prunings and other rubbish may also be advantageously employed in the same way.

Young trees invariably thrive well the first two or three years after being planted; but suffer them to remain longer without any further proceedings being taken, and the penalty incurred will make itself only too plainly visible. Yellow, sickly-looking leaves, which are barely able to withstand the summer's sun, and weak spindly growth are the inevitable results of such a system. To avoid this state of things, and to produce a better, the person immediately responsible for the well-being of the trees should make up his mind to resort to that which, under the circumstances, is the only safe remedy—namely, lifting and replanting the trees periodically, say once in three years. By adopting this practice the roots are prevented gaining a firm hold of the subsoil, which is the cause of so much canker and decay, as it also is of many trees dying prematurely, and of fruit of an inferior quality. Wherever this periodical lifting system is adopted, the trees not growing on walls or as espaliers must of necessity be treated either as pyramids or bushes.

Grown in this way they become, as regards lifting and replanting, manageable for a number of years, and certainly far more than trees which have been unattended. The above applies to Apples, Pears, Plums, and Cherries, also Apricots on walls.

With Peaches and Nectarines unquestionably the best plan is to make and prepare a special border for them, take out the soil 2 feet deep, concrete and drain the bottom, and at a distance of 4 feet from the wall on which the trees are to be grown and parallel to it build a 4½-inch wall of either concrete or brickwork. Now we have to prepare the material for the border. Procure the best turfy soil obtainable in the locality; mix the same with the top soil taken from the border, in proportion of one load of the latter to two of the former; give a fair sprinkling of brick and mortar rubbish, and if the turf is only of an ordinary quality add a little decomposed manure. With this to grow in, and the necessary attention as to training, pruning, watering, and mulching, there need be no apprehension as to what the ultimate result will be.—E. C.

SALVIA GESNERÆFLORA.

AMONGST the many attractive and useful plants adapted for the spring decoration of the conservatory is this old and somewhat neglected plant, which, I imagine, was more recognised upwards of a quarter of a century ago than it is now. Why it should be neglected is a matter for some amount of wonder considering its comparatively easy culture, freedom from the attacks of insects or other disease, and not requiring the protection of glass during the summer and early autumn months. It may be remarked that the foregoing attributes are more or less shared by several other species of this numerously represented genus, which are recognised for their useful decorative value under glass, whilst that unique rich blue coloured species, *S. patens*, introduced from Mexico nearly seventy years ago, is still unsurpassed for richness, besides being equally appropriate both to the greenhouse and flower garden.

It is, however, to *Salvia gesneræflora* that I more particularly desire to draw attention, especially as to its suitability for growing into large specimens for the decoration of the conservatory during the months of March and April, when its long racemes of brilliant scarlet flowers are so acceptable at a time when red flowers are not very plentiful. It is bordering on twenty years since I last had the pleasure of cultivating it, and for many years previously several fine standard as well as pyramidal shaped specimens were in my charge. Some of these included the largest I ever knew, and some little idea may be formed of their size from the knowledge that the stems of a few of the finest of the standards varied from 2 to 4 feet in height and 6 or 8 inches in circumference, with heads measuring when in full bloom several feet in diameter. Of course, it will be conjectured that it was a matter of several years in their cultivation before the specimens in question attained the size indicated.

That their culture was of the simplest character may be inferred when I remark that for several years subsequent to the attainment of their full stature it was the usual practice to prune them hard back as soon as the branches had become ripened after the flowering period. When the new growths had become a few inches long the plants were turned out of the pots and the mass of roots reduced, returning them into the same pots with a substantial compost of turfy loam, old Mushroom bed refuse, and leaf soil, with a little sand, firmly rammed around the ball of roots. When all danger of frosts was over they were plunged up to the rim of the pots in a sunny border, and no further care taken of them, except the necessary waterings and occasional doses of weak liquid manure, until towards the end of September, when they were removed into a Peach house or other structure prior to consignment to the conservatory at any time during the winter, as even when not in bloom the noble appearance of the plants in the form indicated afforded pleasing variety to the other inmates.

It is somewhat of an anomaly that this genus of useful decorative plants should have been comparatively neglected, seeing that several of them possess also the faculty of flowering during the duller part of the year, and of these especial mention may be made of such as for autumn use the well-known old *S. splendens*, supplanted by its form *Bruanti*, and this latter by *splendens grandiflora*, a splendid scarlet-coloured and close-habited variety, a fine specimen of which was exhibited at the Drill Hall last autumn, from the gardens of Sir Trevor Lawrence, when it was awarded a certificate of merit. Next to the foregoing comes *S. Heeri*, a magnificent bloomer, and one of the best to last in a cut state without dropping its flowers. *Salvias*, in general, are not good subjects for lasting in a cut state.

Another variety, *S. rutilans*, deserves mention as a beautiful flowering winter species. It is popularly called the Pineapple-scented *Salvia*. Its crimson flowers are produced in long slender spikes, in the way of the well-known *S. coccinea*. It is a continuous flowerer, which greatly prolongs the beauty of the plant. *S. Betheli* also claims attention for its rosy-pink flowers and floriferous habit, whilst amongst the blue-coloured section *S. Pitcheri* merits distinction, and is most effective in association with some of the white-flowered *Chrysanthemums*. Being herbaceous in character it is easily increased by division or by cuttings made of the young growths in spring. *S. Butcheri* is said to be the best blue-coloured variety for autumn use; it is of dwarf habit. Several others of this interesting and invaluable family might be enumerated for the purpose in question, but the foregoing are amongst the foremost worthy of special notice.—W. G.



NOTES BY THE WAY.

THE movement on the Continent appears to be still spreading, and it may not be long before we have the gratification of recording that Chrysanthemum Societies have been established in Portugal, in Spain, and in Italy. In the early part of the year a meeting was held in Amsterdam of several Dutch nurserymen, with the result that a Chrysanthemum club was started, 110 members joining at the first meeting. We await with no small degree of interest further particulars, as the President and Secretary are well known to us as ardent "Mummers" for some years past.

Concerning the alphabetical arrangement of Chrysanthemum names for catalogue purposes, a subject that has occupied much time and attention, and which M. O. de Meulenaere so well set the example in his excellent catalogues of 1894 and 1895, M. Couillard, the registrar of the French N.C.S. contributes to "Le Chrysanthème" for April a lengthy article, in which several weak points in the system are referred to, and an invitation extended to all who are interested in the subject to consider the question in all its phases, so that it may be fully discussed at the Orleans Conference next November.

It will be remembered that the alphabetical list in the Jubilee edition of the N.C.S. catalogue is based upon M. de Meulenaere's system, but there are minor points in which differences are likely to arise. M. Couillard rightly considers that a common understanding should be come to, so that English, Belgian, and French catalogues, official and otherwise, should agree. In the Jubilee catalogue the principal noun is taken as the word under which the variety should be catalogued; but in a name like *Reiné des Abeilles*, *Ré d'Italia*, or *Queen of England*, differences of opinion may abound as to which is the principal noun, and especially where the catalogue is dealing with a foreign name. M. Couillard, as a Frenchman, is probably feeling what some of us as Englishmen have long ago felt. I believe some of our English Chrysanthemum growers will be invited to attend the Conference, so that any intending to do have plenty of time to consider any suggestions that they may wish to make.

Personally I think the great majority of English exhibitors are indifferent to the question, but they are not so in regard to the length of the names, nor to their foreign appearance. Of course we cannot expect French growers who know no English to name their varieties with plain easy English names, and so long as we are dependent on the foreigner for so large a number of our novelties so long will this inconvenience exist. And it must not be forgotten that we are not the only purchasers to be considered. Looking over the new lists I notice several curiosities of nomenclature that may cause trouble. Such, for instance, as *La Rhune* (not *Le Rhône*), *Montagne d'Oo*, *Premier Congrès de la S.F.D.C.*, *Naissance de la S.F.D.C.*, *Figueris*, *Noëly*, *La Faridondaire*, *Hortulanus J. K. Budde*, *S. M. l'Imperatrice Marie F.*, and *Madame la Comtesse Melchior du Chaffaut*; but on the whole we seem to be improving, and many of these phantoms only frighten us in the spring, for when autumn comes round we inquire sometimes for them, and echo answers, Where?

In the recently published Bulletin of the French Horticultural Society are two articles on the Chrysanthemum, which show that our young French friends during their temporary stay are on the look-out for anything of horticultural interest. One is called the "Royal Aquarium Chrysanthemum Show," and the other, "Chrysanthemums at Rochford's Nursery," the latter being accompanied with a list of varieties grown there.

In a New Zealand schedule of a Chrysanthemum Show, to be held this month, I see it is to be held in the Society's large marquee. Oh! happy New Zealanders! The plants are grown out of doors, and only covered with calico or some light covering to keep the rain off, and the feast of flowers is held in a marquee. I am wondering what an Aquarium Show would be like next November if held in a marquee, the Society's or otherwise. This, however, is in the North Island; further South, I am told, the cultivation and exhibition of the flower more nearly approach English methods.—C. H. P.

AS OF A DREAM.

WHEN "A. D." hoisted me on to my "Memorials of Planting" I little thought that their advent would appear in the same pages that chronicled the death of our dear old friend, Dr. Hogg, though it seems impolitic in me to write him "old," as being his senior. The observation of Mr. G. Abbey, on page 249, where, to my great surprise, he says, "I have only seen him twice," brings back to my mind "a red letter day."

Twenty years had expired since I began sending "copy" to the "Cottage Gardener," which first began to toddle at Winchester, and then when it was strong enough ran off to Fleet Street, where I had occasion to call for the first time to see Mr. Johnson and the Doctor. They were together in the room. Upon learning who I was out rushed the Doctor, who literally hauled me in to Mr. Johnson. Those who are alive and

knew them both can picture in their minds the sort of reception I received. It was "really Upwards and Onwards." After some time of talk by the trio the Doctor said, "Suppose we run down to Greenwich and have a little dinner?" "Agreed," said Mr. Johnson, and off we went there and then, two editors and he of Woodstock to the Temple Pier, where the prow of the boat pointed to the way we should float. Never was whitebait, &c., &c., more enjoyed, or laughter pealed forth more heartily than during that "little dinner." Well, "there is another and a better world."

I must now hark back. I left you last at page 226, in 1837. Early in the spring of that year I visited my native home. Col. Rushbrooke, with his family, had about 1830 gone to reside in France for a term. The Colonel on his return brought home grafts—Court Pendu Plat, Mère de Ménage, and other famous foreign Apples. The Colonel was a horticulturist and a member of the Royal Botanic Society, Regent's Park. I did not let my opportunity slip—for the grafts had grown into flourishing young trees—to beg of Mr. Wigg scions to take back with me to Shropshire. I knew of a nice lot of young Crab stocks growing in a cottage garden at the "Hope," and my scions were quickly whip grafted—every one took, and did well.

James Hardwick, our village carpenter, was a capital tutor to me in grafting, a man who was much employed then by Mr. Andrew Knight, when he had grafting to be done. Saddle and cleft grafting were his usual modes; in cleft more particularly he was a proficient. I send you knife he used*; I have two, so I will make you a present of the instrument as a curiosity. The blades were made at Shrewsbury; the handle and fastening, as you may shrewdly guess, were his own handy-work. Good old James—he stood 6 foot at least, was lanky withal, and had an immense Roman nose, of which he made good use in his articulation. He posed as a man of taste, and judgment to boot. Upon my once questioning him, "why he had not sang in the church choir lately," with an habitual shrug of his shoulders he answered, "If we are to sing, let's sing; but if we are to shout, let's shout." I knew this to be rather a side slap at Jones, so to try and smooth the troubled waters I said, "Oh, but Hardwick, the Scriptures do not forbid us to shout; and besides, if the choir did not raise their voices, nothing could be heard but the music." "Music!" Another shrug. We rejoiced in a base (let the spelling stand, Mr. Editor)—a *base* viol, a fiddle, an oboe, a clarinet, an old copper French horn, and a flute, the latter often producing more blow than melody. Nevertheless, the whole thing was hearty, and Hardwick relented. Mr. St. John used vicariously to call him "the stork," from the peculiarity of his carriage, and his resemblance to that stalking bird. He was an excellent carpenter, however—constructed all our aviaries and hen houses, and a universal help for me during my long residence in Salop. *Requiescat in pace.*

Now for a change. During an interval from planting, I will, if you think fit, relate a circumstance of "felling." On the margin of the churchyard in the foreground of the sketch previously sent there grew six very large Elm trees. They had for many years passed their best limit, and after the manner of their ilk had become very unsafe. Frequently a large bough would come crash down amongst the tombs and gravestones, or across the road, threatening expense to the vicar, or danger to wayfarers. Our factotum's health had given way, and Richard James had now taken a circumscribed place of William Jones. But James was never Jones. I remember once telling him that I would almost as soon trust a cow in the garden as himself, at which he was mighty indignant, and begged me to remember that he had lived with "Yarl Powis at Walcot." I found out afterwards that his employment with the Earl of Powis was the care of a brace of mules. However, James had been employed by Sir William Rouse Boughton and other gentlemen in the neighbourhood, a good deal in the woods, and could fell a tree to a nicety, so I felt the casting of these churchyard trees to be safe under his control.

All went well till the fourth tree was ready for a few final strokes of James' axe, when the rope attached to the upper part of this, the largest Elm, slipped off. The tree was "tottering;" the men were too heavy to undertake the risk of mounting to readjust the rope, but unless it was done the tree, with nothing to guide it, might fall prostrate, smashing amongst the gravestones, and its top limbs go crash through the new south-east window that Mr. St. John had so long been endeavouring to get placed there. There was no time for discrimination, the generalship seemed to devolve at once on me, and the fighting part as well. "Now, James, tie the spare rope to the end of the long ladder, and you, Penny, and young Williams, raise it whilst I 'butt.' Wind this handkerchief round my waist, and secure the rope to it with a bow. Now all hold to the rope attached to the top of the ladder to prevent it bearing too heavily against the bole of the tree, and up I go to try my 'prentice hand at slinging and tying a woodman's knot." Done! and down I slipped on the ladder, which was a familiar exercise. "Down with it; and Penny and Williams make the rope all taut—quick! James, you know all the rest." So with a few strokes of his axe he caused the monster to be thrown on to the bank exactly where it was wanted.

* The knife is a novelty, admirably adapted for its purpose, and will be preserved; blade nearly one-eighth of an inch thick at the back, 13 inch wide, and 4 inches long; handle octagonal, slightly thickening to the butt, where it is 4½ inches in circumference, 5½ inches long; attachment of the blade to the handle ingenious and effective. Evidently James Hardwick liked a good grip for making his "clefts," and he had one. The knife will be handy for opening boxes of fruit and other produce, the lids of which are not infrequently secured with 3-inch French nails. We are much obliged to our vivacious octogenarian (can it be?) and shall hope to meet him at Shrewsbury.

to lie. "Oh! it was a nervous quarter of an hour. But the rope was made secure enough on the two remaining trees, you may depend."

My next planting exploit took place upon the vicarage lawn—six dwarf Pear trees in 1838, in commemoration of Her Majesty's coronation year; and next, in 1840, Hardwick and myself transplanted the grafted trees from the "Hope" into the vicarage grounds, in commemoration of the Queen's marriage year; of course, without thinking that I should ever live to record their history at this time of day; and they may not, for all that I know, be even growing there now. At any rate, I left them flourishing in 1848. I have not visited Stanton Lacey since, and could now in all probability stroll through the village without being recognised. I fear I could do so even where I was born. I am harbouring a wish that I may be able to visit the great show at Shrewsbury in the autumn and take Stanton Lacey on my way thither, to see how, or if any of my commemorations remain to tell me their tale.—ROBERT FENN.

(To be continued.)

COLONEL TREVOR CLARKE.

THIS ardent horticulturist and excellent man passed over to the great majority at Axminster on the 11th inst., in his eighty-fourth year. The event recalls impressions of a very pleasant visit to his ancestral home, Welton Place, Daventry, Northamptonshire, at his special invitation, and as being associated with his esteemed old friend Dr. Hogg. The cordiality of the reception shown by the deceased gentleman to a working gardener marks the kindred spirit that knits together those engaged in horticultural pursuits.

Colonel Trevor Clarke had a profound respect for "good gardeners." His references to Mr. Barron, then Superintendent of the Royal Horticultural Society's Garden at Chiswick, Mr. R. Gilbert, and other practical gardeners of the past and the present, showed the foremost place cultivation and cultivators had in his estimation. Like the real gardener the Colonel himself was he first led the way to the kitchen garden, for no one knew better than he the importance of a full and successional supply of first-class vegetables and fruits, and he recognised the value of a good understanding between the worker in the garden and the presider at the dining table.

On my remarking that the somewhat heavy and red nature of the land at Welton Place was largely responsible for the excellence of the crops his retort was, "Good land often gives that to a gardener to which he would not otherwise be entitled, but even good land requires a good cultivator to take advantage of its stores." Trees—grand specimens of both deciduous and evergreen, indigenous and exotic—attested the sound staple on which they grew, as did the rich green sward of the lawn and the park land. The white Water Lily, the choicest British aquatic plant, admitted no rival in the lake, but crowded it with its luxuriant growth of green and reddish purple tinted leaves and pure, starlike fragrant flowers. So dense was the mass of these Lilies, the result of a rich sediment, that even the swans were unable to force their way through. As I admired the beauty of the scene and surroundings, the Colonel remarked, "Dr. Hogg was enraptured by the sight of the trees, and enchanted with the wilderness and its Swiss cottage." Then there was a sudden pause, for which I could not account, but afterwards learned from the butler (Mr. Nunn) that the wilderness and Swiss cottage were the work and delight of the Colonel's late wife, and that they had suffered in maintenance, the result mainly of agricultural depression.

On nearing the glass structures the Colonel's quaint humour and geniality returned in full force, and referring to Mr. Burbidge and his "Cultivated Plants," waxed eloquent and enthusiastic over his own hybridising work. He referred also to the importance of "selection," of which as an outcome we have Major Clarke's Solid Red Celery, still unsurpassed in the combined properties of useful size, crispness, juiciness, and flavour. As a result of his hybridising we have Begonia weltoniensis, one of the most useful of window and decorative plants; and Mr. Burbidge gives a list of over thirty hybrid Begonias raised by Colonel Clarke. Still on the same theme, reference was made to his endeavours to produce improved varieties of cotton. This entailed a long and exhaustive investigation into the history of the genus *Gossypium*. In connection with this work the Colonel expressed his great obligations to the Royal Horticultural Society, and praised the assistance rendered him by Mr. Barron. The cotton plants were shown me, the best varieties being then cherished by their raiser, also many other rare and valuable plants.

Butterfly Orchids, *Phalænopsis* species, were grown in quantities, and thrived like weeds over open tanks, and perfectly free from "spot." Bulbous plants seemed particular favourites, and rare ones, difficult to flower, flourished, for their owner was in every sense a cultivator—a practical as well as a scientific, gardener. *Monstera deliciosa*, planted at the foot of erectly placed tree holes, sent their long aerial roots into the open tanks of water at their foot, and bore grand leaves, with the finest spikes of fruit I have ever seen. Outdoor plants, especially herbaceous and alpine, were in strong force, the Colonel giving his attention to something of almost everything.

At the time of my visit the Tobacco-growing fever in England had passed its height, but the Colonel had been smitten, and not only grew the weed, but cured and prepared it for use in the form of pigtail, twist, rough cut and shag, cigar or cigarette, and in all colours—black, brown, and golden, with all strengths—mild, medium, and strong. The various brands of the Colonel's growth and manufacture were tried, but

all of them proved the masters of even seasoned smokers, and the subject was changed, the Colonel launching out into the depths of chemistry.

Colonel Trevor Clarke was a gentleman of many parts, not the least of these a chemist. Things liquid and solid were brought out of cabinets and explained. The Colonel made his own superphosphate by reducing the bones of the house with wood ashes from the hall fire and brick oven; also a phospho-potassic manure, with lime and other substances thrown in. Nitrogen and mineral matter was had from soot; while sewage was made sweet and eminently nutritious to crops by the use of sulphate of iron. The Colonel was an excellent botanist, an entomologist of considerable repute, a cultivator, experimenter, hybridiser, naturalist, and scientist. Colonel Trevor Clarke appeared not to count these as accomplishments, but as requirements for everyday use in the successful practice of horticulture.

There was no reference on his part to the gold medal awarded to him by the Cotton Supply Association of Manchester, and a special gift from the then Emperor of Russia, for the success of his experiments in hybridising and improving the varieties of cotton of the genus *Gossypium*. The grand old gardener—man of science, and fine old English gentleman—was as modest in respect of his own work as he was entertaining in conversation and liberal in diffusing information, yet, like other accomplished men, was ever seeking advice on anything of a perplexing nature to him. As an instance of this, he had a difficulty in getting his Melon plants to set their fruit. "They want something we are not giving them," remarked the Colonel. "Can you tell us what it is?" I made answer that they needed phosphorus and lime, for they were gorged, like the "hacca," with potash. Without saying anything more we passed on, but next morning I noticed that the Colonel had given them a dressing of superphosphate of lime. Months after that time I received a letter from him, saying that I was right. "The Melons did need phosphoric acid and lime. I gave them some of my superphosphate, and they have done splendidly. It acted promptly, both on the first and second crop."

The Colonel was a lover of music, and an accomplished player on the flute, the strains of which continued into the morning hours, and then came rest. Such is a reminiscence of my brief visit to Welton Place, in response to the invitation of its then gallant and generous-hearted owner.—G. ABBEY.

HOLLY HEDGES.

As this is the time of the year when many are thinking of forming hedges it may be of advantage to submit a few practical notes to the readers of our Journal. The best hedge plant is certainly the common green Holly, as it forms an impenetrable and ornamental fence, and when well established acts as a capital break to cold winds. The results of my experience here given have been bought at a great cost, for I have had hundreds of Hollies killed by injudicious or careless planting. The most important matter to be attended to is the purchasing of the Hollies. It is a wise plan to purchase the plants near home, and to see and examine them before buying.

The plants which are most suitable for moving have an abundance of fibrous roots; to such the soil adheres well. If the plants have long straggling roots from which the soil easily falls they will very likely be killed by removal. Nurserymen who grow Hollies extensively are careful to transplant them very often, so as to encourage the formation of fibres at the root. On stiff land Hollies cannot be grown satisfactorily for removal unless manure and peat are worked well into the soil. From the above remarks it will be seen that a judicious buyer will have several plants taken up so that he may examine the roots. Before the plants are lifted everything should be prepared so that they can be planted in the required positions without any delay, as it is most injurious to keep Hollies long out of the ground. One of the strongest points in my mode of procedure is to transplant quickly. I have had Hollies lifted in the morning, conveyed ninety miles by rail, and planted before night. There is the great danger of the roots becoming dry, which must be carefully avoided. If by accident the roots do become dry it is a wise plan to dip them into a bucket of water. In planting the soil should be trodden only moderately firm.

The best compost to work round the roots to assist the formation of fibres is a mixture of well decayed stable manure and bog or peat; this worked in liberal quantities into the soil as the work of planting proceeds will keep the roots moist, which is important, especially for young plants. I prefer the months of April or May for planting, but I am guided generally by the weather. I prefer moist weather for transplanting Hollies, no matter what time of the year it be.

In suburban districts many Holly hedges are planted in the front of villa gardens. I have seen hundreds of plants killed by injudicious planting in such positions. Villa gardens of the class I refer to have usually at the front a small stone wall about 3 feet high. The border is made to slope from the level ground to within a few inches of the top of the wall, and the Holly hedge is planted so that it shows well above the wall; it is thus exposed to the wind, and is in danger of becoming dry at the roots. In such a position the wonder is that the plants live at all. Any danger from this cause is easily avoided by allowing the soil to come only within a foot of the top of the wall. The appearance at the outset is not so striking, but in a few seasons the gardener so planting will be gratified by seeing a well-established hedge.

Immediately the hedge is planted the soil should be mulched with manure or tan to keep the roots moist. If very dry weather follow the

planting, the hedge will be benefited by a thorough watering. Persons who have established Holly hedges which are doing badly will find it a good plan to dig well to the roots, and work in a liberal quantity of good manure. If care be taken that the roots are not injured the hedge will be found to make a great improvement in a very short time. During severe weather Hollies sometimes suffer; it may, therefore, be of use to some to say that when a Holly loses its leaves through frost it is regarded as a good sign, for the plant will in all probability break out into growth when genial weather comes. The mode of procedure mentioned above I have found to be most successful, and the experience which I have pleasure in presenting to the readers of the Journal has been gained over a long period, and by many failures and many successes.—V.

MORÆAS.

At first sight most of the Moræas would be considered to be Irises, and to casual observation they present few distinguishing characteristics; but on close examination we at once find them differing from the true Irises by their bulb-like root, thus approaching the bulbous Irises (Xiphionites). On a further examination, however, it will be observed that the root of the Moræas is solid or corm-like, and not formed in layers as it is in the Xiphionites. The species can be grown in pots or planted out; but the former is preferable, light soil being employed, and providing good drainage. Large pots are not necessary; 3-inch or 5-inch suit them well, placing several bulbs in each. Supply water judiciously, but when growing or flowering they must not be allowed to become dry, and even in the resting period withholding water must not be carried beyond reason.

M. Sisyrinchium (fig. 73) is a beautiful species, a native of the South of Europe and the Mediterranean region, and has long been known as Spanish Nut, because it is said that in Spain the children eat the root as a nut, of which it is suggestive both in the form and the brownish colour. It was mentioned by the old writers Gerard and Parkinson, and has therefore been known in this country nearly 300 years. The flowers are very handsome, though fugitive, the larger perianth segments being bright deep blue marked with white and yellow in the centre, the other divisions of the perianth being also blue, but lighter in colour. The illustration depicts the chief floral characters, well showing the general form. The flowers are usually produced in the spring, about May.

Though a European species *M. Tenoreana* was not introduced into England until 1824. It is scarcely less beautiful than the one referred to in the preceding paragraph, though the flowers are smaller, but the colour is very rich. The divisions of the perianth are narrow, the upper half being deep blue, and the lower towards the centre yellow and white with a few dark spots. It flowers fully a month later than *M. Sisyrinchium*, and thus forms a welcome succession.

M. edulis was one of Loddige's introductions from the Cape of Good Hope to this country, but it is said to have been known in Holland for many years. It was originally found by Thunberg growing abundantly in the neighbourhood of Cape Town, chiefly in low positions and in sandy soil. The flowers vary in colour, but are mostly of a pinkish hue marked with blue and white, the divisions of the perianth being neatly rounded. One very pleasing characteristic the flowers possess—namely, a most agreeable though delicate fragrance.

Three other species that deserve growing are *M. ramosa*, with comparatively large flowers, bright yellow, with a dark blotch at the base of the petals; *M. ciliata*, with small bright red flowers, rounded petals, and a yellow centre blotch; and *M. papilionacea*, with bright orange coloured fragrant flowers, which are produced a little later than *M. Sisyrinchium*. These with the preceding form a good half dozen, and fairly represent the genus.—F. D.

THE WOOLLY APHIS, OR AMERICAN BLIGHT.

THIS insect has decidedly increased during the last few years, particularly in orchards and Apple plantations where the trees have been unpruned and neglected; and its action is most injurious. Young trees planted in infested orchards and plantations are frequently so injured by the woolly aphides carried to them by the wind and by the winged females that they die. Their bark being tender is easily pierced by the sharp beaks of the larvæ, and they cannot long withstand these attacks.

Apple growers often notice bunches of a woolly or cottony substance on the stems, branches, and twigs of Apple trees, especially upon scars and cracks where the bark has been injured, or where side shoots and branches have been cut off in an unworkmanlike manner, so that wet has collected and caused decay, and fissures have been formed which have increased in depth and width, while the edges of the outer layers of bark do not join, and a thin tissue covers the exposed parts. Upon examination the white substance on these will be found to consist of little groups of aphides in various stages, some of which are clothed with fine woolly coverings, and are actively engaged in piercing these denuded surfaces with their suckers and in feeding on the sap, thus causing an abnormal growth of tissue. Extravasation of sap occurs, giving rise to excrescences and warty growths, which afford food and shelter for the numerous generations of larvæ, and eventually the whole branch is affected and its vigour and fruitfulness materially impaired. The infestation spreads rapidly to other parts of the tree, and the smaller branches and fruit-bearing spurs are in time attacked. When the twigs and fruit-bearing spurs are attacked they are soon killed by

the action of the aphides. After an uninterrupted visitation of these insects it often happens that the infested tree dies or becomes useless.

The effect of this attack is sometimes attributed to "canker," but it is altogether different, and careful inspection will show that the woolly aphis is the sole author of the mischief. It spreads from branch to branch, from tree to tree, and from orchard to orchard unheeded, and unchecked, and it is sheltered and protected by the lichenous and mossy growths upon the trees and the thick interlacement of boughs and branches unpruned for generations. The woolly aphis is occasionally found upon Plum trees, especially where they are planted near Apple trees, as well as upon Elms.

The woolly aphis also infests and injures the roots of Apple trees and causes swellings and excrescences upon them. It has been suggested that the aphides merely go under the ground close to the roots for protection from cold; but the colonies found there were evidently



FIG. 73.—MORÆA SISYRINCHIUM.

feeding upon the roots. Besides, it is certain that they can bear great cold, as they have been seen flourishing under their woolly coverings in the cracks and crannies of the branches after 12° of frost.

The aphis belongs to the genus *Schizoneura* of the Aphididæ. It is quite distinct from another species of aphis found upon Apple trees, known as aphis mali, which lives upon the leaves and blossoms. The winged female, which brings forth living larvæ, is dark brown, having large wings with black veins; the cubital vein, as pointed out by Mr. Buckton, has a single furcation or fork, differing in this respect from other tribes of the Aphididæ. Towards the end of the summer, among the larvæ produced by the winged females, are wingless, egg-bearing females of a dirty yellow colour, without beaks or rostra, and therefore unable to feed. Only one very small, round, transparent egg is laid by each of these wingless females, and is deposited in the crevices of the bark. Propagation—the regular continuity of existence—is principally carried on, however, by the hibernating viviparous larvæ, which pass the winter wrapped in their woolly coats upon the trunks of the trees, on the branches and twigs as well as upon the roots. These wingless females are woolly, of a brown colour, and broad or squat in shape. The larvæ from these are at first rather lighter in colour, and after a time emit wreaths of woolly material from their dorsal pores and become completely covered, so that a group of them has the appearance of a piece of cotton wool. In their early stages the larvæ have enormously long beaks or rostra, bent underneath the body, and extending much beyond the extremities of the body, so that they appear to have tails when seen without a microscope.

There appears to be no visible difference between the generations of this insect that are found upon the branches and those on the roots of Apple trees.

METHODS OF PREVENTION AND REMEDIES.

Apple trees should be kept free from mossy and lichenous growths, which serve as shelters for woolly aphides, as well as for many other injurious insects. Lichens and mosses can be killed by throwing finely powdered lime over the trees during the winter, in foggy or damp weather, so that the lime adheres to the trees. This can be done by men with tin scoops, like flour scoops, fastened to the ends of long poles. Sulphate of iron dissolved in water, at the rate of 1 lb. to 1 gallon of water, sprayed over the trees in winter by means of a powerful garden engine, or hop washer, will kill lichens and mosses, and interfere much with the woolly aphids.

Young trees should be carefully and systematically pruned, so that their boughs do not intertwine, and plenty of air and light is admitted. Periodical search should be made for woolly aphides and other insects upon young trees. When the woolly aphid is discovered in wounds and scars on the stems and branches, which are often frequented by its colonies, these places should be treated in the late autumn or winter with a thick compound of softsoap and paraffin oil, mixed in the proportions of 3 gallons of paraffin to 1 lb. of softsoap and 25 gallons of water, worked into the cracks and scars with a stiff brush. Infested boughs and twigs should be syringed at the same period with a mixture of 5 or 6 lbs. of softsoap and 5 gallons of paraffin oil to 100 gallons of water. In mixing the paraffin washes the soap should be dissolved in hot water and the paraffin put in whilst it is hot, and the whole incorporated into a cream with a hand pump or syringe, working the liquid up and down. Cold water must then be added in proper proportions.

In old orchards and plantations in which pruning has been neglected boughs and branches crossing each other should be cut away judiciously, and daylight let in. Scars and deep fissures on the trunk and stems where woolly aphides congregate should be treated with freshly mixed limewash, having a little powdered sulphur in it, worked well in with a stiff brush. The thick softsoap and paraffin wash would be more efficacious, but it is somewhat expensive. For the infested branches, boughs, and twigs of large trees spraying with the softsoap and paraffin mixture should be adopted.

In orchards where trees are in regular lines horse hop washers may be used. In old orchards, where the trees stand irregularly, and in plantations with standards and bushes below, hand washers or garden engines with powerful pumps and long lengths of hose must be employed.

Where Apple trees are infested with woolly aphides on their stems and branches examination of their roots should also be made for infestation thereon, which is indicated by swellings upon the roots, and by the groups of woolly insects. The earth should be removed from the base of the trunk and from a few feet of the lateral roots. Limewash with sulphur brushed well in, or the thick paraffin wash, would be advantageous. Penning pigs close round infested orchard trees, or watering the roots with strong liquid manure, would make it unpleasant for the subterranean invaders. Kainit hoed in round the roots has been found efficacious in Canada.

Before Apple trees are planted their roots should be well soured in a tub containing fresh limewash and sulphur.

In Australia there are varieties of Apples said to be proof against the action of the woolly aphid by reason of their bark being hard and its tissues close, and so resisting the action of the beaks of the insects. These are the Northern Spy, an American Apple, and the Majetin, a Norfolk (England) variety, and Apples in Australia are now always worked upon these stocks. Mr. French, the Government Entomologist of Victoria, says, "Before the advent of these excellent blight-proof stocks, the Majetin and Northern Spy, it was exceedingly difficult to find in most orchards an Apple tree that was clean or in perfect health. Now with a little care and attention the fruit grower, as a rule, may snap his fingers at the American blight."—"Board of Agriculture, Leaflet No. 34.")

AMELANCHIER CANADENSIS.

DURING April one of the most conspicuous of the many hardy flowering plants is the one under notice. Varying much in size and habit it is well adapted for a variety of purposes, and being an easily managed plant it is almost certain to be a success. Some forms never grow into more than bushes a few feet high, while instances of others are recorded as having made trees 25 to 30 feet in height.

The tree forms in this country are usually met with from 15 to 20 feet in height, with short stems and bushy heads, resembling very much the head of a well-balanced Apple tree with pendulous branches. Bush forms are admirable for planting in beds or masses, and once planted in good soil they will take care of themselves for a number of years. Suckers (which are thrown up freely) grow in one season to 3 or 4 feet in length, and form graceful arching branches, which in April are wreathed with racemes 3 inches in length of pure white flowers.

Added to the value this North American introduction possesses as a spring flowering shrub it has the additional recommendation of being a most beautiful coloured foliage plant in autumn, the leaves changing to orange and red before falling. If plants of the dwarf growing forms are lifted in the autumn, potted, and placed in gentle heat in January, they will be found to make a welcome addition to the greenhouse or conservatory.—W. D.

LILY OF THE VALLEY, FORTIN VARIETY.

IMPROVED variations of that popular flower, the Lily of the Valley, cannot be said to be very numerous, certainly not in proportion to those of other favourites even less extensively grown than this. Some fine forms have, it is true, made their appearance from time to time, and have by degrees come into general cultivation.

All of these have either been grown by myself or have been under my close observation, and though they individually possess special qualities or recommendations, there is not one known to me that can rival the Fortin variety for some of the most important qualities. It is essentially a form of remarkable vigour, both leaves and flower spikes being of unusual size, very sturdy and tall. The spikes are from 9 inches to 12 inches long, with twelve to eighteen large pure white bells, and in some instances more have been noted. It is valuable for outdoor cultivation, and is also suitable for moderate forcing, but is not so well adapted for very early work.

The robust habit, rapid increase, large spikes and bells will render it a general favourite as its merits become known. Last year I saw a large plantation of the variety grown in sandy loam in the neighbourhood of Ampthill in Bedfordshire, which I am informed is the stock of Messrs. Laxton Bros., who are paying close attention to what is unquestionably an excellent variety. Recently flowers were exhibited in Bedford and greatly admired by the members of the local Horticultural Society.—OBSERVER.

[Specimens of this variety sent to us by Messrs. Laxton Bros., Bedford, were superb. The longest spike measured 15 inches and carried sixteen bells, of which the largest was $\frac{1}{2}$ -inch across, outside measurement. The several spikes averaged fifteen bells each.]

THE BRITISH CLIMATE.

THE Meteorological Office has issued a set of mean or average values for the chief meteorological elements, based upon records kept at a large number of stations scattered over the entire kingdom, and extending over a long series of years down to the end of 1895.

BAROMETRICAL PRESSURE.

The means are given for twenty-nine stations well distributed over the United Kingdom, show that over the year as a whole the barometer is highest in the extreme southern, and lowest in the extreme northern parts of the country. The same feature is, in fact, shown in every individual month excepting April, the difference between the readings in the two localities being greatest in the winter time. In April the conditions are somewhat abnormal, for while the barometer is still lowest in the north of Scotland, it is highest over the central parts of England.

On an average the barometer over the kingdom generally reaches its highest point in June, but on our south-west coasts it is almost equally high in September, while in the south-eastern parts of England the second place is claimed by February. The lowest barometrical pressures occur at various times of the year in the different districts. In the south of England April appears to be the month chiefly favoured, but in other parts of England the lowest readings occur either in October or November. In Ireland the barometer reaches its lowest point in November, while in Scotland the minimum occurs in December.

HUMIDITY.

The averages of the dry and wet bulb thermometers, which are also given for twenty-nine stations, supply us with information as to the relative humidity or degree of moisture in the air. As a rule, the atmosphere is driest either in May or June, the air being most humid in one or other of the winter months between November and February. Taking the year as a whole, the moistest locality in the United Kingdom is the Hebrides, these islands lying in the direct track of the two most common sets of cyclonic systems—viz., those which pass northwards along our western coasts, and those which skirt the north of Scotland on their way from the Atlantic to the Scandinavian peninsula.

TEMPERATURES.

The mean values relating to the maximum and minimum temperatures are singularly comprehensive, the number of stations employed being no fewer than seventy-four. Over the United Kingdom generally the highest maximum or day temperatures occur in July, the only exceptions being the Welsh coasts and the extreme southern parts of Ireland and England, where the greatest heat is registered a month later. The lowest day temperatures occur as a rule in January, but in many parts of Ireland and Scotland they are as low, or even lower, in December. The highest and lowest minimum or night temperatures are, as a rule, observed, like the maxima, in July or January. In portions of the west of Scotland, however, the lowest night readings occur in February, while at some stations on the shores of the Bristol Channel they are observed as late as March.

In the table the highest temperature quoted was in London, where the thermometer in August, 1876, rose to 96°, the reading at Cambridge at the same time being only 1° lower. In the Scilly Islands the thermometer in the same twenty-five years never rose above 75°, while at Summerville Head in the Shetlands it never went above 70°. The lowest reading shown in the table is one of 5° below zero at Loughborough in February, 1895. This, however, was several degrees higher than the temperatures recorded in many other parts of Great Britain during the long and severe frost which prevailed at that time.

RAINFALL.

The rainfall averages are given for seventy-two stations, and extend over the thirty years, 1866-1895. With one important exception the figures give a fair representation of the average fall over the United Kingdom. For the wettest locality of all—the English Lake district—no information is given; but another very wet district—viz., the West of Scotland, is fairly represented by such stations as Glencarron, Fort William, and Laudale on Loch Sunart. At Glencarron the average rainfall for the whole year is nearly 86 inches. In London the average is rather under 25 inches, while at Spurn Head, the driest place given in the table, the annual fall is less than 21 inches.

In the extreme south of England the driest month in the year is May or June, but in London and over the midland counties generally it is March, while in the north-east of England February has the least rain. Over Scotland, the north-west of England, and all but the extreme southern parts of Ireland, the driest month is April, though very little drier than May. The wettest month over England and Wales as a whole is October, but at some stations in the north and east of England the rains are heaviest in July. In the south of Scotland and over the central parts of Ireland July or August is the wettest month, while on our south-west coasts, including the south of Ireland and the Scilly Islands, as well as in the west and north of Scotland, the distinction is claimed by December or January.

SUNSHINE.

The averages of bright sunshine, which are given for forty-six stations, show that the brightest spot in the whole kingdom is Jersey, where the average duration of sunshine in the whole year is 1930 hours, or 44 per cent. of the possible. Next to this come many other English Channel stations, where from 1650 to 1750 hours are registered. In London we only get on an average 1240 hours of sunshine per year, or 28 per cent. of the possible amount. This is, however, better than Glasgow or Fort William, where they only get 25 per cent.

The sunniest month in the year is May, and afterwards June or August. In August the proportion of the possible amount is, as a rule, appreciably larger than in July, a fact which seems at present to admit of no ready explanation. The gloomiest month of all is, as a rule, December. In this month even the sunny Channel Islands do not get more than one-fourth of the possible duration. In London the ordinary allowance of sunshine in December is only 9 per cent. of the possible, and at Glasgow 8 per cent., while at Fort William it is as low as 6 per cent.—("Daily News.")

THE YOUNG GARDENERS' DOMAIN.

It is especially desired that all contributions intended for insertion in this column be addressed, till further notice, to the Editor, 8, Rose Hill Road, Wandsworth, London, S.W. There is a perceptible falling off in letters from probationers, and perhaps the "willow" has in some instances been found more attractive than the pen.

THE HORTUS SICCUS OR HERBARIUM.

(Concluded from page 324.)

THE ancient adage, that if a thing be worth doing at all it is worth doing well, applies to the preservation of plants for the herbarium as much as to any great and important work or business. Specimens that are no better than fragments of brown stick, or which seem mere effigies of plants cut out of thin brown paper, the flowers shrivelled and shrunk so as to be no longer recognised, the leaves crumpled and doubled up, everything confused and smashed together, such as one may sometimes see in collections, are altogether undeserving of the name. Nothing that is not dried in the best possible manner, its colours and configuration preserved as perfectly as the nature of the plant will admit, ought to be allowed a permanent place in the herbarium. The bad may be tolerated awhile in default of better, but the farther a specimen is from vivid and pleasing resemblance to the living thing, the speedier should be the endeavour to supersede it. Specimens from abroad that cannot be superseded, of course, I do not speak of. In the plants within reach, none but admirable representatives of their best features while alive should be considered worthy of a place.

Plants dry variously; some require not a moment's trouble, others demand patience. Grasses and their allies, most kinds of Ferns, plants that resemble Heather, Everlastings, the mature leaves of shrubs and trees, call for only the minimum of care. Those which try the patience, and can be managed only after considerable experience, are such as may be illustrated by citation of the Hyacinth.

To secure the best results obtain half a dozen pieces of stout mill-board cut to about 18 inches by 12 inches; then gather together a hundred old newspapers, and fold them neatly and to about the dimensions of the millboards; 4 or 5 yards of common white cotton wadding, a score of sheets of tissue paper, and as many of blotting paper, all cut to the same size, complete the requirements.

One of the boards serves for the foundation; on this spread a newspaper, then a piece of wadding, and upon this place the specimens intended to be dried. The cotton being soft every portion can be laid in a proper and natural way, including the petals of the flowers. Lay a newspaper over them, two or three if the specimens have thick stems, and so on, till all shall be deposited in the way of the first. If the specimens are sticky or hairy, or of a kind that the wadding seems likely to adhere to, then, before depositing them on it, introduce a half sheet of the tissue paper.

A heavy weight must be put on the top of all, sufficient to imbed the specimens in the wadding; then leave the whole to rest for twenty-four hours. All the papers must then be changed, dry ones being put in their place, and if the plant seems to throw off a very considerable amount of moisture, such as will render the wadding quite damp, change the wadding also. A second and even a third change is desirable at the end of two or three days or a week, and when this is made introduce the blotting-paper, pressing again till everything is perfectly flat and the specimens are absolutely dry.—C. W. M.

[We are obliged to our correspondent for the precise instructions he has given on this subject. The drying of specimens and their classification, as suggested last week, affords interesting and instructive occupation for young gardeners.]

FORCING FRENCH BEANS.

I AM surprised by the trouble "W. W." (page 301) takes, and the work he makes in French Bean forcing. It would be interesting to know what advantages, if any, accrue from the potting-on system. I think the practice adopted by my chief is preferable. We have more Beans, with a saving of time and labour, by sowing direct in the fruiting pots. We grow a quantity of specimen Chrysanthemums in 11-inch pots, in the vineries and Peach houses, and as these plants are cut down, and the houses started in January and onwards, we turn the soil out of the pots on the path, chop it up, pick out the old Chrysanthemum stools, add one-third of old Mushroom bed refuse, mix and return it to the pots, sowing sixteen Beans in each, and place them on the hot-water pipes until the plants are in rough leaf. We then stand them on the borders, 4 feet apart, where they make short, luxuriant, self-supporting growths, from 12 to 15 inches high, and a yard through the plants, without a trace of red spider. Treated in this way they make their growths before the Vine foliage becomes dense. We sow three dozen pots at intervals of three weeks, and gather about 2000 thick, fleshy Beans from the plants of each sowing. The two last sowings are made in April, these plants are grown in Peach houses, and require supports, as the growths come somewhat thin and elongated owing to the rising spring temperature, and the extra syringing required by the Peach trees in May. Care is taken not to overwater, but when the plants commence flowering liberal supplies are necessary. We cannot see any beneficial results from liquid manure, and have discontinued it.—STONE-WARRILOW.

[A brief narrative of successful practice, highly worthy of record here.]

DIPLADENIAS.

THE Dipladenia is a valuable stove climber, and also makes an effective specimen for exhibition, but the plants require much care in cultivation. Brisk heat is necessary, and they must at all times be shaded from the bright sunshine, admitting at the same time as much light as possible.

The Dipladenia should not be overpotted. Plants about eighteen to twenty months old, if they are in a good condition, require pots from 12 to 14 inches in diameter. With regard to the most suitable soils opinions differ. Where really good fibrous loam is obtainable it may be used for Dipladenias with an equal quantity of good peat, together with sufficient coarse sand and charcoal to keep the whole porous and sweet; but if loam is not in the best of condition avoid it by using more peat.

Dipladenias, if grown for exhibition purposes, are trained on a wire frame or "balloon;" but first the young growths must be trained up the rafters of the stove. When flower buds appear the growths are with great care taken down and tied to the trellis, always bearing in mind to have a good head and front to the plant, tying the weaker shoots to the back.

In the growing season the most suitable temperatures range between 65° and 75° by night, rising to 80° and 85° by day, with a moist atmosphere, obtained by well damping down the stages or ashes, which the pots may be standing on.

Dipladenias require a moderate supply of water during the growing season, but as soon as they have finished flowering they should be removed to a cooler house, fully exposed to the light, to well ripen the wood, after which they require very little water, and must soon be returned to the stove.

With regard to insect pests, I think the most injurious is the mealy bug, which should be removed with lukewarm water and a soft sponge. Softsoap is often used with the warm water to well clean the foliage.

There are many Dipladenias in cultivation; but I think the most suitable for exhibition purposes are *amabilis*, *amoena*, *hybrida*, *profusa*, *Ellioti*, and the king of them all *Brearleyana*.—W. LOCK.

[Our correspondent sends us a photograph of a splendidly grown plant, but unfortunately not clear enough for satisfactory reproduction.]

CAMDEN CYCLES.—Gardener cyclists within the metropolitan area have not had a very bright chance of following their hobby of late, but the time will come when there may be twenty-four consecutive hours of fine weather. Then must the rider mount and away to some brother craftsman to see what there is to see, and talk what there is to talk. To the one who does a fair amount of visiting of this nature the bicycle is a very great boon, and those whose mount is getting the worse for wear or out of date will do well to consult the catalogues of the British Cycle Co., 42, High Street, Camden Town, the makers of the high grade "Camden" bicycles, ere finally placing their order.



HARDY FRUIT GARDEN.

Disbudding Superfluous Growths of Fruit Trees.—Disbudding is an operation which requires to be carried out more or less with all trained fruit trees. It is, however, with stone fruit trees on walls that the practice of disbudding is chiefly concerned. Apricots, Peaches, and Nectarines are usually the most freely attended to under good management. Plums, Cherries, Apples, and Pears are not generally so dependent on this attention, though they are benefited by the removal of some growths. This is especially so when the trees are young and in the course of formation into special shapes. The main object of this operation is to regulate growth and prevent overcrowding. Energy is also conserved, and led into a limited number of channels, consisting of well-placed growths fully exposed to light, as it is by these means alone that the best success can be achieved with all kinds of hardy fruit trees.

Method of Disbudding.—The operation consists in rubbing or breaking out the growths not required when they are an inch or two long. After they have attained to a much greater length they cannot be removed without cutting. This is frequently necessary in the later stages of disbudding, or when the work has been left beyond the proper time. The tissues at the base of the shoot become somewhat thickened and strengthened, hence the importance of early attention. Disbudding should always be gradually carried out, so as to occasion no check. A little at a time and frequently is the best rule to follow. The weather has some influence on the work. More shoots may be removed in active growing weather than in cold periods.

Apricots.—As soon as a number of growths have advanced sufficiently look over the trees and rub off the ill-placed shoots first. The whole of such between the branch and the wall may be dispensed with, also those on the lower side, reserving a selection emanating from the upper sides for laying in as successional wood for fruiting. Apricots form a number of natural spurs, which may be permanently retained. Some of the foreright shoots, which have to be removed to prevent overcrowding, instead of being cut out entirely may be shortened at the third leaf to form spurs. The leading growth of the fruiting shoot must be left, eventually stopping it at the third leaf. This growth is required to draw sap to the fruit. One of the well-placed shoots at the base retain to take the place of the fruiting shoot in autumn. Other suitable growths in various parts of the trees may be reserved if necessary for filling unoccupied space, or replacing a weak, ill-nourished branch.

Peaches and Nectarines.—In the early spring management of these trees early but light and frequent disbudding forms no inconsiderable part. Young and vigorous trees need constant attention to prevent the extension of shoots not suitably placed, first, for forming the foundation or outline; second, the distribution equally and regularly of fruiting shoots. As Peaches and Nectarines do not form spurs so naturally or freely as Apricots fruit is borne principally on young well ripened shoots of the previous year. Therefore a sufficiency of these should be laid in. The process is the same as with Apricots. Ill-placed growths are in all cases removed first. Commence disbudding at the top of the trees.

Reserve the leading growth on the fruiting shoot, stopping it later on. Without some foliage above or near the fruit the latter cannot be nourished. A full supply of successional shoots must be retained, one at the base of each fruiting branch, laying it in in the desired direction as it extends in growth. In some cases two such growths may be encouraged, but this must be regulated by the available room. Crowding during growth is pernicious. The leaves should have full opportunity of carrying on the work of assimilation, and thus be enabled to store up material in the buds for the following year's use. Strong and sappy growths starting from old wood are, as a rule, not required, and should be rubbed off before they gain strength, and utilise energy which is better distributed throughout the trees.

Plums and Cherries.—Trees showing indications of producing too many shoots eventually, for which there will be no room, ought to receive a little systematic disbudding so as to reduce the number. Choose for removal those which are weak and ill placed, reserving the best either for extensions of young growths for laying in at full length, or shortening them early at the third good leaf to form spurs. Both methods may be adopted with Plums and Sweet Cherries trained on walls, but the young wood may not produce fruit until the second or third year. Short and stubby natural spurs must be retained wherever possible.

Apples and Pears.—Disbudding is specially beneficial where there is a large amount of growth produced among the spurs. Such growths occupy valuable space, and prevent light and air reaching permanently fruitful spurs. Well established fruitful trees do not produce superfluous shoots that need removal by disbudding quite so readily. Young trees both on walls and in the open may usually be improved by a little judicious disbudding, so as to assist the regular disposal of the growths and secure shapely forms of trees.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest Forced House*—Cease syringing the very early varieties—Alexander, Waterloo, Early Beatrice, and Early Louise Peaches; Cardinal, Advance, and Early Rivers Nectarines—as soon as the fruits give indications of ripening. Do not supply water excessively at the roots, yet maintain the soil in a moist healthy condition, and afford moderate air moisture by damping the paths and borders occasionally. Hale's Early, Dr. Hogg, Dymond, Stirling Castle, Crimson Galande, and Royal George Peaches, with Lord Napier, Stanwick Elruge, Humboldt, and Dryden Nectarines will need liberal supplies of water, and perhaps nourishment to swell their fruits well. Where the crop is too heavy thin the fruits, for it is not the flesh, but the stones that exhaust the trees. Tie the shoots well in, so as to give the fruit the benefit of all the sun and air possible and insure its colouring, drawing aside the leaves that shade it. Take every precaution to have the foliage free from insects before syringing ceases, applying an insecticide if there is any trace of red spider, syringing forcibly afterwards.

Trees Started at the New Year.—Do not hurry the trees until the stoning is completed, making sure of that by trying a few fruits with a knife. Continue the temperature regular at 60° to 65° at night, and 70° to 75° by day until the stoning is completed; then, if the ripening is desired to be accelerated, it may be kept at 70° to 75° artificially, but falling 5° at night, and keeping through the day at 80° to 85° from sun heat. Close sufficiently early in the afternoon to run the temperature up to 90° or 95°, with plenty of atmospheric moisture, syringing early enough to have the foliage fairly dry before night, and admitting air early, so as to let the pent-up moisture escape before the sun acts powerfully on the leaves. Afford copious supplies of water to the roots, and liquid manure if necessary, with a light mulching of spent manure. Let the fruits have all the light possible, placing them with the apex to the light, drawing the leaves aside or shortening them. Thin finally directly the fruit has stoned. Secure the growths as they advance, keeping them thin. Pinch laterals at the first and every leaf, stopping growths for next year's bearing at about 14 inches, unless required for extension.

Houses Started Early in February.—With the fruits the size of Walnuts the thinning should be effected to a few more than will be required for the crop. Encourage no more shoots than are necessary for furnishing the trees with next year's bearing wood and extension growths. Pinch the shoots retained to attract the sap to the fruit at two or three joints, and to one afterwards as produced. Allow all plenty of light, for the solidity of the wood depends on the fibrous nature of the roots and the exposure of the growth to light. Ventilate early, commencing at 65°, and increase it with the sun heat, having it full at 70° to 75°. Maintain a temperature of 55° to 60° at night, and 60° to 65° by day artificially.

Trees Started in March.—When the Peaches are fairly swelling remove the superfluous fruits, beginning with those on the back or under side of the trellis, then proceed with the rest when it is seen which take the lead in swelling, removing those not wanted gradually. Follow up disbudding until the growths are removed to the number required, always reserving a shoot at the base of the current year's bearing wood, leaving those on extensions 15 to 18 inches apart, and allowing that distance between the extensions. Retain a shoot on a level with or above the fruit, and, if not wanted for extension, pinch out its point at the third leaf, and to every succeeding joint of growth. Train all other shoots in their full length as far as space permits, keeping them secured to the trellis, with ample space in the ties for the growths to swell. A temperature of 55° at night and 5° to 10° advance in the daytime is sufficient, ventilating freely above 65°. Syringe the trees twice a day in favourable weather, but only once when dull, and keep the borders well supplied with water, never letting the roots lack moisture.

Late Houses.—When Peach and Nectarine trees are in blossom the sight is pleasant, and the odour of nectar significant of a good set. Bees abound in the houses, and brush the flowers over with results alike beneficial to the grower and the apiarian. A little fire heat to maintain a day temperature of 50° to 55° insures advancement, admitting a little air top and bottom so as to promote a circulation. A chink at night is also beneficial, excluding frost by maintaining the temperature at 40° to 45°. Admit air freely at and above 55°, not allowing the temperature to exceed 65° without full ventilation. A genial condition of the atmosphere can be maintained by damping the borders and paths occasionally, but avoid making the atmosphere so humid that moisture condenses on the blossoms during the night.

Unheated Houses or Wall Cases.—The chief points in these structures are to secure a well ventilated atmosphere in the early part of the day, and to have the border well supplied with moisture, but not needlessly wetting the surface, which is best rather dry, especially towards evening, as it attracts moisture in that state, closing the house before the temperature is much reduced so as to enclose a moderate amount of sun heat. About 5 P.M. is usually sufficiently early to close the house for the day, as walls give out heat some time after closing, generally sufficient to insure the safety of the blossom if it is kept dry. Damping or watering should be done in the morning, so that superfluous water may be dissipated.

Vines.—*Early Houses.*—Grapes now colouring fast will require abundance of warm air by day and night, with plenty of atmospheric moisture, damping the paths, walls, mulching, or borders. This assists the Grapes in swelling, and preserves the foliage in health. A careful examination of the borders should be made, and if they are dry a liberal

application of tepid liquid manure will be a powerful aid to the Vines. Gradually reduce the night temperature as the Grapes ripen, keeping the atmosphere dry and cool; but guard against excessive dryness, as early Grapes with ventilation require much more water at the roots than late ones, with moderate air moisture for the benefit of the foliage, which must be kept clean and healthy as long as possible. When approaching ripeness moderate fire heat will be required to keep up a temperature of 60° at night and a little more in the daytime. Gradually remove fermenting material from outside borders, leaving a mulching of some that is partially decayed for the protection of the surface roots, and allow them to have the benefit of summer rains, which will wash the fertilising elements into the soil and stimulate the Vines into the production of new laterals after they are relieved of the crop, which tends to the health of the principal leaves.

Midseason Houses.—Attend to thinning the free-setting varieties as soon as the berries are set, but Muscats and other shy-setting kinds should be left until the properly fertilised berries take the lead. If a large percentage of the surplus bunches were not cut off before they flowered no time must be lost in getting them removed, and laterals that have been allowed to ramble may be stopped, tied, and regulated in accordance with the space at command. Inside borders may have a thorough supply of liquid manure or a top-dressing of fertiliser washed in, and a mulching of short rather lumpy manure. It is well to use sweetened horse droppings and spread them over the whole border in order to afford the Vines the benefit of the ammonia-charged atmosphere, adding a few fresh droppings from time to time; but care must be taken not to overdo it, or the ammonia will be too powerful for the tender foliage of the Vines. Where the Vines need extra support a liberal dressing of artificial manure may be given with great benefit, but it is necessary to follow the instructions carefully. Phosphatic, potassic, magnesian, and calcic elements are those chiefly required by Vines.

Late Houses—Bad breaks, as usual, are heard of where the wood has not been well ripened. In order to prevent its recurrence and the disposition to run to tendrils the late Vines should be started earlier, and ripened with more fire heat in late summer, so as to secure thoroughly finished fruit and perfectly matured wood. Various expedients are resorted to for correcting the evil, not any being better than stopping the shoots three or four joints beyond the fruit and tying the growths down to the trellis. Choose the latter part of a fine day for this operation, when they are limp, keeping them rather drier and warmer by day. Gros Colman and other late free varieties will now be setting; they will then have all the summer before them. These Grapes require a long time to grow and perfect; they also need abundant supplies of water and nourishment. Muscats and other shy-setting varieties should be carefully fertilised, operating on fine days when the temperature has reached its maximum, employing pollen from free-setting varieties, and maintaining a rather brisk, dry atmosphere. A temperature of 70° at night and 75° by day is not too much for Muscats when flowering. It is usual to leave surplus bunches until the flowering is over, which is a mistake, as Vines that do not set a proper number of bunches satisfactorily are not likely to do so better when more are left—indeed, it is better to make a selection of the bunches that are to remain for the crop before they come into flower, remembering that large and loose bunches are the worst for finishing, and the medium-sized and compact the best for ripening and keeping well.

Late Hamburgs—The Vines are moving rapidly, and need attention in disbudding, tying down, and regulating the growths. Do not stop the shoots until they are developed beyond the fruit to the extent of two joints where the space is limited, and four where there is room, pinching laterals below the bunch to one leaf. Above allow them to extend so as to insure an even spread of foliage over the space, but no more than can have full exposure to light, afterwards keeping closely pinched. Ventilate early and freely, so as to insure short-jointed sturdy wood and thick leathery foliage. Avoid overwatering the border, as a saturated condition of the soil is not favourable to root action, but keep it moist, especially any top-dressing or mulching, so as to encourage surface roots. If a few sweetened horse droppings are sprinkled on the border occasionally some ammonia will be given off, and other manurial matter will enter the border from them at each watering.

Newly-planted Vines.—When the roots take to the fresh soil the Vines will indicate it by growing freely. To secure sturdy growths ventilate early, and let all the growths remain that can have full exposure to light. Supernumeraries intended for next year's fruiting should have the laterals pinched at the first leaf, afterwards allowing them to make a few joints of growth, and pinching the cane at 8 to 9 feet length. Take every possible care of the leaves on the cane, not allowing them to be interfered with in any way by the laterals. Close early, with plenty of atmospheric moisture.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, The Royal Gardeners' Orphan Fund, Chiswick, W.

THE BEE-KEEPER.

SPRING FEEDING.

As a regular reader of the thoroughly practical remarks of "An English Bee-keeper," which appear from week to week in the *Journal of Horticulture*, I feel I should like to send a few notes on the important subject of spring feeding. I have been a bee-keeper for more than a quarter of a century, and will give the details of the system I have adopted during the major portion of that period.

At the present time and for some weeks to come bee-keepers will be occupied chiefly in feeding up their stocks, so as to have them as forward as possible when honey is abundant. The first fine day will see the bees carrying large quantities of pollen. This income after the long repose of the winter months causes considerable excitement as well as activity among them, and excitement from any cause is invariably followed by a rapid rise in the temperature of the hive. The natural result of this is a thorough warming of the cluster. The bees spread themselves out, giving the queen more freedom to move about on the combs; and she will, if this increased warmth is maintained for a day or two, commence ovipositing much more freely than before. On the other hand, if a day's busy pollen gathering is followed by cold weather, the excitement subsides, the bees cool down as it were, and cluster as closely as before. If the bee-keeper select the right day when the cluster is fully aroused, and supplement the pollen obtainable by a continuous supply of thin syrup, he has it in his power to keep up the abnormal warmth of the day's busy work, and the bees are stimulated or forced just as plants are by the action of the hot-bed. To make the matter quite clear, it must be understood that the bees' share of the work is simply to create and maintain a temperature sufficiently high to hatch the brood, while a good queen is always ready to hatch as many eggs as the bees can attend to.

When a start is decided on warm the food slightly. Do not give the first bottle till the evening, because a rapid supply of syrup given to half a dozen stocks on a warm day would be almost certain to induce a tendency to rob all round, and this should be very carefully guarded against. The following morning remove the bottle, whether all the food is taken or not, and substitute the slow feeder. Another thing must not be overlooked. Any weak stocks must be left unfed until the others have become accustomed to the feeding bottle. If a weak stock is fed at the same time as strong ones probably it will be attacked and the food taken from it as rapidly as given, in which case it is almost impossible to preserve it. The feeder should also be carefully guarded against bees reaching it from the outside.

About half a pint of syrup should be given as rapidly as the bees will take it on commencing to stimulate, after which I think the best guide as to quantity is 1 pint (or 1½ lb.), given at such a rate as will occupy seven days in taking the whole. Three and a half ounces per diem may not seem a great quantity to maintain a large colony of bees; but it must be remembered that by the time the stocks become strong there will be a natural income in addition, so that the amount suggested is abundant. If there is much sealed food in the hive a comb may have the cappings removed, and if placed in the centre of the bees they will at once take the honey to another part of the hive, leaving the cells ready for eggs.

When stimulating is successfully started the increased warmth of the coverings about the feeder becomes very perceptible. The bees constantly crowd round the source of supply, and are always on the look out for the food. The entrance of the hive must be contracted to about 1 inch, and every means be taken to add to the warmth of the coverings. There is no need for ventilation after February is passed, and crown boards may be used with advantage over the quilts.

An effective feeder may be made as follows.—Take a common pickle bottle holding about a pint, cut a square of very thin zinc (the thinner the better), make on this a circle the size of the bottle mouth, and with scissors cut the zinc so that the parts projecting beyond the circle may be bent down to the neck of the bottle, and tied on with a string. Three small holes punched in the zinc will give about the right quantity of food. If a thin board, the same size as the top of the hive, has a 1½ inch hole cut in its centre, is laid over the quilts, with a half brick or other weights on each corner to keep it down, a capital feeding stage is formed, and it only needs a small piece of glass for slipping over the hole when removing the bottle to make it complete.—OLD STAGER.

TRADE CATALOGUES RECEIVED.

Wm. Paul & Son, Waltham Cross.—*New Roses.*

Merryweather & Sons, Limited, London.—*Water Appliances.*



TO CORRESPONDENTS

All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," 8, Rose Hill Road, Wandsworth, London, S.W. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

Postal Disarrangements.—In consequence of the Easter holidays more than usual delay seems to have occurred in the delivery of letters. At least such is our experience, both as regards letters we have posted and received. Postal officials, however, need a little relaxation, and this reference is not so much a complaint as an explanation why certain communications could not be attended to this week.

Tulipa Greigi and Narcissus Cynosure (A. B. G.).—The form of Tulipa Greigi that you send with the type is certainly beautiful, but such variations are not uncommon in seedling plants, and this yours may be. We have heard of several similar. The Narcissus Cynosure does not appear to promise anything valuable from a commercial point of view.

Chrysanthemum Seed from Japan (D. R. B.).—It is impossible to say what you may expect from the seed beyond Chrysanthemum plants. We hope, however, you will be more fortunate than Mr. Wells was with a packet direct from Japan. This gave him 2000 plants, but of these, if he is accurate, 1999 which flowered in 7-inch pots produced inferior single flowers, and were thrown away, only the remaining being "double," which he named Trafalgar. It was the survivor of a great slaughter certainly, but the Nelson of Earlswood lives to rejoice in honour of his victory.

Cytisus racemosus (Inigo).—The flower shoot forwarded by you was very much withered on arrival, but in all probability the above is the correct name. Certainly it is a Cytisus, of which you may readily increase your stock by the prompt insertion of cuttings of the shoots the plants are now so freely producing. Fill pots with light sandy soil, placing several cuttings round the sides. Keep these shaded for some days, being very careful in watering, and roots will soon be formed in any genial structure. Pot the young plants when such a course becomes necessary, and pinch out the points of the shoots so as to insure a dwarf, compact habit, for in this lies the chief beauty of the plant.

Peach Shoots Diseased (St. Leonards).—The leaves are affected by the silver-leaf disease, which is usually attributed to frost when it occurs outdoors, as it does very commonly on Plum tree leaves, also on Cherries, and frequently on Portugal Laurels. It is a puzzling malady, and in some cases fatal, often arising from poverty of soil. In your case, however, the tissues are crumpled of the mycelial hyphae of a fungus, which is, if we make no mistake, that of *Monilia fructigena*. The mycelium is perennial in the tissues, and the growth of this causes the gumming or sudden collapse of the shoots during growth, or even destruction of large branches. It is greatly influenced by nutrition, hence lifting is one of the best means of checking the tendency to its activity; indeed, that and cutting away the diseased growths and branches is the most effective remedy. Once in the trees, however, it is difficult to get rid of; the mycelium, though lying dormant, may wake up, and overcoming the resistive power of the tree cause gumming as bad as ever, hence many experienced cultivators consider removal the only perfect cure. We have, however, found lifting and a properly constructed border of sound materials, together with cutting out diseased parts very satisfactory, the trees growing out of the disease, as the saying is, but really eliminating it from their system. No external application is of any use in effecting a cure, though lightly dusting with a fungicide containing sulphate of copper in powdered preparation, such as fostite and anti-blight, may prevent the spreading of the parasite. Use substantial food, such as bone superphosphate 5 parts, muriate of potash 2 parts, sulphate of magnesia 1 part, and sulphate of iron half part, mixed, applying 2 to 4 ozs. per square yard. Lifting the trees at the proper time should be attended to, and cutting out and burning all diseased growths or wood. This will give the best results, at least such is our experience. This reply will equally meet the case of another correspondent.

An Empty Envelope from Dublin.—A duly stamped envelope addressed to Mr. J. Wright, 17, Fleet Street, has been properly delivered at 171; but it has never been gummed down, and if any letter were placed inside it, it has been lost in the post.

Prunus triloba (Erith).—If you refer to page 322 you will find that the name is not *Prunus triloba* but *P. triloba*, and it is correct, the leaves being three-lobed. The species was introduced from China in 1857.

Bouvardias (H. P.).—You will perhaps find the desired information in the article on page 342. If there are any particulars in which it does not quite meet your case, please specify them and the matter shall have further attention.

Sweet Peas Injurious to Tame Pigeons (W. S.).—Mice and rats are good judges of nutritive quality and value in Peas. They leave Sweet Peas severely alone, and they are not, as a rule, taken by wild pigeons. We have heard of similar occurrences to yours, but our pigeons refused the seeds. They certainly are not suitable food, and probably injurious.

Illustration (W. E. G.).—You were told that the illustration was not taken from the "Botanical Magazine," or any other work, but from a spray cut from a growing plant. If you had written when the illustration first appeared, and not years after, we could have sent you a specimen, but cannot do so now. We took some trouble to ascertain the facts of the case, and supplied you with the information as soon as it was available. We are obliged by the reference, but a visit to the libraries you mention is unnecessary.

Tomato Seedlings Withering (Anxious).—The plants appear very healthy at the roots and in the stems, nothing being amiss but a slight withering of the leaves. These were examined microscopically, without any trace of disease being found, outside or inside the tissues. The leaves appear to be scorched, due possibly to the tender growth flagging under powerful sun, especially after a few days of dull weather. This is a common occurrence, and can only be avoided by early and careful ventilation. The cold weather accompanied with the biting winds would conduce to the condition presented by the leaves. Grow the plants as sturdily as possible, not sparing attention in ventilating, especially in the early part of the day, for it is allowing the heat to advance considerably and moisture to settle on the leaves, then admitting air too freely at once, that cause scorching.

Clean and Dirty Flower Pots (B. Drayton).—Of course you are right. At no time can the great advantage of using perfectly clean flower pots be so well appreciated as when the plants are being turned out of them, as the roots and soil come out of clean pots as freely and smoothly as a jelly out of a mould; but if the pots were dirty inside when the plants were placed in them, the roots adhere to the sides, and half of them—and these are always the best—may be torn off during the process of removing the pot. Never, therefore, in potting use a dirty pot, but always have it washed clean inside, and dried before any soil is put in. This is just one of those little matters that have to be explained time after time before its import can be understood or is admitted. Even for years the matter has been made prominent, yet not a few persons either cannot or will not comprehend, and go on spoiling plants in hundreds. Practical lessons on the subject will soon be afforded during what is known as "bedding-out time."

Vine Leaf Rusted (E. S.).—There is no disease on the Vine leaf as caused by either insect or fungi, visible or microscopical animal or vegetable organism. The appearance closely resembles an attack by Vine-leaf mite (*Phytoptus vitis*) and even the Grape Vine louse (*Psylloxera vastatrix*), but there is one specific distinction—the leaf surface indentations are from the upper side downwards when caused by "rust" but in reverse order when induced by the insects. Both require harbour, and the plant structure grows away from them. The leaf is a very fine one, having plenty of substance, but unfortunately "rusted." This is occasioned by a sudden stoppage of the transpiratory functions, and may occur through the opposite extremes of a scorching and a chilling, commonly the latter, especially in your case, with which we have to deal at present. The cause is a chill. The atmosphere of the house has been allowed to become heated by the sun, and the moisture correspondingly expanded, which, with the sap made to flow freely upward by the heat, caused the stomata, or breathing pores of the leaf, to open, in the endeavour to rid the tissues of the excessive moisture; then the lights have been thrown open and evaporation greatly accelerated by the air drying. This is analogous to cooling, and the consequence is the tissues are chilled, the stomata close, and the mischief is done. In order to repair the damage the tissues form new cells, and this gives the thickened appearance to the leaves known as "rust," the dead cells being more or less intermingled with the living, and in consequence have a rusty appearance. This interferes more or less with the elaborating and assimilating functions of the foliage, but is not a material injury to vigorous Vines, as yours are. The avoidance of the evil lies in early and careful ventilation, a little air being afforded constantly, and care taken to enlarge the openings before the sun has raised the temperature to any great extent. This you will understand, and with it you have no occasion to feel alarmed. As the Vines are poor in roots you may accelerate their formation by the use of bone superphosphate, using about 4 ozs. per square yard, and pointing it in lightly, if it can be done without disturbing the roots, or you may use the following mixture:—Bone superphosphate 3 parts, double sulphate of potash and magnesia 2 parts, best air-slaked chalk lime and dry soot, in equal proportions by measure, 1 part, mix, and apply 4 ozs. per square yard, washing in moderately. It is often more convenient and equally effectual to Thomson's, Pearson's, Innes', or other advertised fertilisers, any or all being excellent for your purpose.

Ribes aureum (Nemo).—This is the name of the shrub of which you send a specimen. It is a hardy deciduous plant of great beauty that is well worthy of extended cultivation for affording that variety so desirable in mixed borders or shrubberies. Propagation may be effected either in the spring or autumn, selecting ripened shoots and inserting them in the open ground.

White Insects on Coleus Leaf (B. B. H.).—The snow-white insects belong to the order Hemiptera, sub-order Homoptera, tribe Aleyrodidae or "Snow Flies," which closely resemble small moths, both sexes having opaque wings of nearly equal length. The species is closely related to the Tomato white fly (*Aleyrodes vaporariorum*, *Westwood*), which also infests *Lantanas* and other plants in greenhouses, and has often proved injurious to Cucumbers. It is, however, larger than the Tomato fly, being one-eighth of an inch long, snow white, except in the thorax, which is brownish black, mottled with yellow and white. The yellowish body is covered with a lily-white shield, and beneath this innumerable eggs in a flocculent substance. This particular fly may be a form only of *A. vaporariorum*. This was first described and named by Prof. Westwood in 1856, and in 1886 it was very destructive to Tomatoes. The insects, by means of their beaks, abstract the juices of the plants, causing the leaves to become yellow, wither, and die. The eggs are deposited on the leaves; these hatch in about ten days into larvæ—white, oval, with two large dark patches on the back, and have six legs and two horns (antennæ). The larvæ feed on the juices of the leaf by means of a sucker, cover themselves with a white scale, turn to a pale pupa, and from this the insect emerges in about four days. It is rather difficult to kill this pest. Repeated fumigation with tobacco or vaporisation with nicotine essence have proved effective, and anti-blight powder has been found useful; but the most effectual means is to form flowers of sulphur into a cream with skim milk, and apply this lightly to the hot-water pipes whilst hot and the house closed. The fumes of the sulphur kill the flies. It must not be overdone, or it may prove injurious to the delicate-leaved plants.

Names of Fruits.—Notice.—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. They should be sent on the first indication of change towards ripening. Dessert Pears cannot be named in a hard green state. (F. F. G.).—1, Winter Pearmain; 2, Norfolk Beefing; 3, Newton Wonder; 4, Sturmer Pippin. (G. H. F.).—1, Fine specimens of Bramley's Seedling; 2, Wellington; 3, Round Winter Nonesuch; 4, Easter Beurré. (F. E. C.).—1, Nec Plus Meuris; 2, unknown, worthless; 3, Nouvelle Fulvie; 4, Olivier des Serres; 5, Passe Crassane; 6, Brownlee's Russet.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, at being often difficult to separate them when the paper is damp. (J. P. P.).—Your specimen was considerably withered, but it is possibly *Læliopsis domingensis*. (T. C.).—1, *Selaginella Kraussiana*; 2, *Cystopteris fragilis*; 3, *Pteris umbrosa*. (J. H.).—1, *Dendrobium Wardianum*; 2, *Vanda suavis*; 3, *Odontoglossum crispum*, poor form. (A. W.).—1, *Cypripedium hirsutissimum*; 2, *Dendrobium fimbriatum oculatum*; 3, *Adiantum grandiceps*; 4, *Asplenium bulbiferum*; 5, *Adiantum capillus-Veneris*; 6, *Pteris cretica*. (G. E. B.).—The leaf arrived dried and crushed like brown paper. The tuber is an *Achimenes*. Pot in loam and peat, and grow in a warm house. (J. B. C.).—1, *Thuia orientalis*; 2, *Forsythia viridissima*; 3, *Ribes aureum*; 4, not recognisable; 5, *Lonicera hirsuta*; 6, *Phillyrea media*, var.

COVENT GARDEN MARKET.—APRIL 21ST.

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100	0 0	0 0	Mustard and Cress, punnet	0 2	0 4
Beans, ½ sieve	0 0	0 0	Onions, bushel	3 6	4 0
Beet, Red, dozen	1 0	0 0	Parsley, dozen bunches	2 0	2 0
Carrots, bunch	0 3	0 4	Parsnips, dozen	1 0	0 0
Cauliflowers, dozen	2 0	3 0	Potatoes, per cwt.	2 0	4 9
Celery, bundle	1 0	0 0	Salsify, bundle	1 0	1 0
Coleworts, dozen bunches	2 0	4 0	Seakale, per basket	1 6	1 0
Cucumbers	0 4	0 8	Scorzoneria, bundle	1 6	0 0
Endive, dozen	1 3	1 6	Shallots, per lb.	0 3	0 0
Herbs, bunch	0 3	0 0	Spinach, pad	0 0	4 0
Leeks, bunch	0 2	0 0	Sprouts, half sieve	1 6	1 0
Lettuce, dozen	1 3	0 0	Tomatoes, per lb.	0 4	0 9
Mushrooms, per lb.	0 6	0 8	Turnips, bunch	0 3	0 0

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	1 3	2 6	Lemons, case	11 0	14 0
Filberts and Coobs, per 100lb.	0 0	0 0	Plums, ½ sieve	0 0	0 0
Grapes, per lb.	3 0	3 6	St. Michael Pines, each	3 0	8 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (various) doz.	6 0	36 0	Ficus elastica, each	1 0	7 0
Arum Lilies, per dozen	9 0	18 0	Foliage plants, var. each	1 0	5 0
Aspidistra, dozen	18 0	36 0	Genista, per dozen	6 0	10 0
Aspidistra, specimen plant	5 0	10 8	Hyacinths large, per dozen	6 0	9 0
Azalea, per dozen	18 0	36 0	Lily of the Valley, 12 pots	9 0	12 0
Cinerarias, per dozen	6 0	9 0	Lycopodiums, dozen	3 0	6 0
Cyclamen, per dozen	8 0	12 0	Marguerite Daisy, dozen	6 0	9 0
Dracæna, various, dozen	12 0	30 0	Mignonette, per dozen	6 0	8 0
Dracæna viridis, dozen	9 0	18 0	Myrtles, dozen	6 0	9 0
Erica, (various) per dozen	9 0	18 0	Palms, in var., each	1 0	15 0
Euonymus, var., dozen	6 0	18 0	„ (specimens)	21 0	63 0
Evergreens, in variety, doz.	4 0	18 0	Pelargoniums, per dozen	9 0	15 0
Ferns in variety, dozen	4 0	18 0	„ Scarlet, per doz.	4 0	8 0
Ferns (small) per hundred	5 0	8 0	Spiræa, per dozen	6 0	9 0

Roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches	1 6	3 0	Mignonette, dozen bunches	3 0	6 0
Arum Lilies, 12 blooms	5 0	9 0	Narciss, (various), dozen bunches	1 3	2 0
Asparagus Fern, per bnch.	2 0	3 6	Narciss, Yellow, dozen bunches	1 0	2 0
Azalea, per dozen sprays	0 6	0 9	Orchids, var. doz. blooms	1 6	12 0
Bouvardias, bunch	0 6	0 9	Pelargoniums, 12 bunches	6 0	9 0
Carnations, 12 blooms	1 6	3 0	Polyanthus, dozen bunches	1 0	2 0
Daffodils, double, dozen bunches	1 6	3 0	Pyrethrum, dozen bunches	1 6	3 0
Daffodils, single, dozen bunches	2 0	4 0	Roses (indoor), dozen	0 9	1 6
Eucharis, dozen	3 6	4 0	„ Tea, white, dozen	1 0	2 6
Gardenias, dozen	3 0	6 0	„ Yellow, dozen (Nels)	3 0	4 0
Geranium, scarlet, doz. bunches	6 0	9 0	„ Red, dozen blooms	1 6	4 0
Hyacinth (boxes) Dutch	1 6	4 0	„ Safrano (English), dozen	1 0	2 0
Lilac, White (French), per bunch	3 0	4 0	„ Pink, per dozen	4 0	8 0
Lilium longiflorum, 12 blooms	2 0	4 0	Smilax, per bunch	4 0	6 0
Lily of the Valley, 12 sprays, per bunch	0 6	1 0	Tuberose, 12 blooms	1 0	1 6
Maidenhair Fern, per dozen bunches	6 0	8 0	Tulips, dozen blooms	0 6	1 0
Marguerites, 12 bunches	2 0	3 0	Violet Parme, per bunch	2 6	3 6
			„ per doz. bunches	1 0	1 6
			„ (French), per dozen bunches	0 9	1 6
			Wallflowers, dozen bunches	1 6	4 0



OUR POULTRY YARD.

THOSE who are the personal attendants on live stock ought, and do, know most of the requirements and management of the living creatures committed to their care.

We as outsiders leave as a rule the poultry yards to our wives, and we have persuaded a lady of our acquaintance, who is a successful poultry rearer, to give us her experience. She obliges as follows:—

To begin with, I should just like to say that I am a tenant-farmer's wife, with no money to waste on fads and fancies, and that I am bound to make the most of my fowls, as on them I depend for many household things as well as the clothing of myself and children.

There are no costly appliances in the way of coops, chicken houses and the like, and I cannot afford to give £2 2s. for a pure-bred cock. It would not pay me to go in for special breeds—there might be a difficulty in keeping them pure if the eggs were sold guaranteed for breeding purposes, and so far there is to my knowledge no particular breed which will combine egg-laying qualities, early sitters, and good table birds.

Some of the recommended sorts are too delicate for a northern climate. Houdans, which lay well, suffer much from frosts; indeed, they lose toes, and get into a very low, weak state, while Leghorns lay well, will not sit, and present a wretched appearance on the dish. Orpingtons I could not get to live. Perhaps it was my want of management. My strain is now a mixture of Houdan and Langshan, Indian Game and Dorking. I have two or three Cochins, as I find they come to maturity early.

By keeping a few old birds in the autumn, when the hen selling is going on, I provide myself with fairly early sitters. It does not pay to grow fowls for market; at least, not as I grow

them. Of course, if the fattening department were adopted things might be different. Then a proper building would be necessary, and I should need help beyond what I can supply myself, and the wages of a boy and the extra food preparation would make a great hole into my profits. The idea I have carried out is to produce plenty of eggs with a minimum of labour, fowls to keep up my breeding hens, and a few couples for the table. Of course, one's best laid plans go amiss sometimes, and it is awfully aggravating to see a preponderance of young cockerels in the yard in place of their sisters. However, by sending these alive to market there is no need to take a bad price; they can always be brought home, and wait for the next week.

Unless an incubator is very good, and consequently expensive, you are better without it, and to speak truly, I have no capital wherewith to buy such a thing, nor place to keep it in when bought. Now as to sitting hens. On the first symptoms, a nice nest is prepared on the ground in an old dog kennel, disused rabbit hatches, or under a coop. The nest is made of a grass sod, grass side downwards, the earthy part hollowed out and lined with a bit of hay.

Madam is inducted into her new home at dusk, and suitable food and water is placed within reach. When coops are used chicken feeders are put in front so as to allow the hen a bit of exercise ground, and I take care she shall have a plentiful supply of dust and lime. I have no time to let hens out exercising every day—they must do their own exercising. I like to vary the food of a sitting hen a little, and often introduce a piece of Mangold or a Swede Turnip to their notice. If the weather be warm the eggs should occasionally be sprinkled with tepid water; indeed, towards the end of the three weeks ours are usually washed.

A little help is often needed when the egg is "sretched." Sometimes a chick is too weak to get itself fairly out of the shell. Then, too, an egg may be very much crushed—care and a little warm water will work wonders. The chicks come into a warm basket by the fire as soon as they are hatched, and when all are off and on their legs the mother is put down at once on the bare ground. Should the weather be very bitter a little chopped straw will make things more comfortable, or peat moss litter and an old sack put in front. For the first day the chicks require little or no food. Then they get chopped-up eggs, bread steeped in milk, and small rice. Before each coop is a chicken-feeder—a three-sided frame of rough wood with a wire top.

For the first few days I let the hen feed with the chickens for two reasons—she teaches them how to eat and gets a bit of good fresh food herself, as after three weeks of close sitting she is much out of condition. After that time the chicks are fed separately in the feeder, and coarse grain is given to the hen in the coop. On no account should a coop have a bottom—it is simply impossible to keep them clean, and I move my hens daily. I am certain this is a great point. Nothing can thrive among smells, and a coop with a hen and ten or a dozen chickens soon gets very nasty. I have never had a swill tub all my life, but instead keep in the kitchen a small tin can in which are put all the morsels from the plates. In a large household there are always bits. People will not eat up bread crusts, and bread puddings are so *nauseous*. The trimmings of toast, bits of potato, pudding, vegetables, sauces—all these I turn into chicken food, and I also appropriate all the old milk I can get.

In winter a large basket hangs from a bacon hook in the kitchen, and receives many contributions in the form of crusts; being in so warm a place there is no chance of mould, and warm water or milk will soon reduce the hardest crust.

Of course a mistress must have the co-operation of her cook, but this is a thing I have never found difficult. We have some thick hedges here, and our hens are accustomed to lay among the roots. This I always encourage, and I get some of my best "clutches" out of the Yew hedge in the garden. Occasionally I am unkind enough to substitute the egg of the duck, but the patient does not grumble.

One great point in rearing healthy chickens is to change the feeding and rearing ground every year. Of course this is not always possible, but even if the distance from the house is greater the henwife will find repayment for her extra trouble in a clean bill of mortality.

The coops and the feeders can be easily knocked up by a handy groom, and nothing makes a better refuge for the bigger chickens

than a huge heap of thorns—it acts both as a shelter from wet and sun. It is desirable to set two hens the same day, so that if by any mischance the broods are small the chicks can be amalgamated, and only one coop needed. Never let young chicks out in the very early morning, that is if there has been a white frost or heavy dew.

I only rear a few ducks for the table; these are penned up on grass in a shady situation. Young ducks, if they have the least chance, are dreadful gadabouts, and trail off, heedless of distance or damp grass. Young ones cannot stand this. Their food is meal mixed stiffly, and ducklings must have a good supply of water. An old panchen sunk in the ground and filled with stones, to act as refuges, makes a capital watering place.

I have a great belief in broken pottery or flint for fowls. Their teeth are in the stomach, and they need sharp grit of some sort to aid mastication. Natural grit often fails, and therefore if much poultry be kept it is absolutely essential to provide substitutes. All our broken crockery ware is put aside, and when there is a spare half hour is converted into chips by the aid of a flat iron on a defunct iron boiler. Then scattered in the yard it is most amusing to watch with what avidity the sharp morsels are swallowed. I may not say more. As to sale of eggs the local market is "too too," so my eggs are consigned to a dealer in a large manufacturing town, and when I have paid his commission and railway carriage I am still largely into pocket over our market price.

WORK ON THE HOME FARM.

We have finished drilling spring corn, and that sown early is well above ground. The weather, however, is so frosty that much damage may be done to the young blade. We hear of 12° of frost being registered, and ice half an inch thick. The forward Wheats are showing a yellow tinge in the lower parts of the fields, the natural effect of such weather late in April. We have had a little rain, but the temperature does not rise.

Pastures have now become very bare, indeed, and store stock have had a serious drop in price. We trust it will only be a temporary one, and that warmer weather and growing grass will soon put more confidence into the mind of the grazier.

We are top-dressing our Wheat—at least, that which was sown after Potatoes. Ninety pounds nitrate of soda, 2 cwt. superphosphate, and a little common salt per acre make a good mixture; but the mixing should be done carefully, as the ingredients vary so very widely in character and strength.

One field of Wheat we are sowing with small seeds for one year's pasture. We are sowing the manure mixture first, then the seeds, and harrowing all in together. The Wheat is a strong good plant, and will be all the better for a little knocking about and earthing-up; it is, indeed, difficult to harrow Wheat too much.

This field is an example of what can be done to a very foul piece of land by a course in which are two successive green crops. It is a very light sandy field, and two years ago was exceedingly full of Twitch (this was chiefly owing to a very wet bad following summer for the previous Turnip crop). In 1895 Turnips were sown; there was a fair crop, and they were consumed on the land. Last year a Potato crop was taken, and now a man would make a very poor wage if given 1s. each for every plant of Twitch he could find amongst the growing Wheat; at any rate, we have searched, and failed to find one so far. This course of cropping can be commended with confidence to the attention of those who are farming land of this description.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.: Long. 0° 8' 0" W.: Altitude 111 feet.

DATE.	9 A.M.				IN THE DAY.				Rain.
	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature	
1897.		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.
April.									
Sunday .. 11	30.190	41.8	39.7	E.	43.2	53.0	27.8	92.9	24.9
Monday .. 12	29.789	43.8	44.1	S.	44.1	52.5	42.3	66.6	39.1
Tuesday .. 13	29.744	50.4	47.1	E.	44.7	60.3	44.5	88.9	41.6
Wednesday 14	29.616	50.4	48.0	W.	46.3	57.3	47.2	105.3	43.2
Thursday .. 15	30.178	46.9	42.1	W.	45.4	56.3	35.4	106.2	30.8
Friday .. 16	30.143	51.3	46.2	S.W.	45.2	53.7	42.6	79.1	36.4
Saturday .. 17	29.949	50.1	49.6	S.W.	45.6	56.3	44.1	84.7	39.4
	29.344	48.5	45.2		44.9	55.7	40.6	89.1	36.5

11th.—Sunny most of the day; cloudy evening.

12th.—Overcast all day, with occasional spots of rain in morning.

13th.—Much bright sunshine, but overcast at times.

14th.—Gale and rain in small hours and wet till 9.30 A.M.; gleams of sun from 10.30 A.M., and bright afternoon.

15th.—Brilliant early; alternate cloud and sun during the day, with occasional sprinkles of rain.

16th.—Sunny early; overcast day, with drizzle and showers at intervals.

17th.—Steady rain in the small hours and overcast and showery day, with occasional gleams of sun.

A week of typical April weather. Temperature as a whole very near the average, but considerable range, and a sharp frost on the morning of the 11th.—G. J. SYMONS.

PLANT NOW **BARR'S** PLANT NOW
Hardy PERENNIALS.

BARR'S New Large-Flowering PHLOXES.

25 finest varieties 10/6, 15/-, and 21/-
12 " " " " " 6/-, 9/-, and 12/-
6 " " " " " 3/-, 4/-, and 6/-

CHOICE MIXED COLOURS of above, in great variety of colour, for massing, &c.; per doz., 4/6; per 100, 30/.

BARR'S DELPHINIUMS—
Finest Large-flowering Varieties.

12 fine named sorts 7/6 and 10/6.
6 " " " " " 3/6 and 5/6.

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Collections of **HARDY PLANTS.**

12 distinct varieties, 5/6; 25 distinct varieties, 10/6.

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12 & 13, King Street, Covent Garden,
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NURSERIES—LONG DITTON, SURREY.

STRAWBERRY—ROYAL SOVEREIGN.

To show the extent and appreciation this variety is receiving in Kent, Mr. COURT, of BELVEDERE, had 2000 last year, and 8000 more this; and to show the satisfaction our plants give, we append:—

"John Bolam & Sons, Alnwick, April 9, 1897.
"The finest consignment of plants we have ever had, and your mode of packing is the best."
Fine Runner Plants, 8s. per 1000: for 20,000 and upwards, 7s. per 1000.

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NEW CATALOGUE POST FREE
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OUTDOOR FLOWERING PLANTS,
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HERBACEOUS AND ROCK PLANTS.

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No. 379.—VOL. XXXIV., THIRD SERIES.



NEW FUCHSIAS.
1897.

Mr. WILLIAM BULL

Is now sending out the following splendid **NEW FUCHSIAS.** They are all superb varieties, and can be confidently recommended.

BALTIC, short bright crimson tube and sepals, the latter well reflexed; rich purple single corolla, veined at base with crimson.

LATONA, short tube and recurved sepals of a coral crimson colour; full double white corolla shaded at base with deep rose.

LUCIUS, very large and broad bright crimson sepals, completely reflexed, tube short; large white corolla, veined with rose at the base.

OBERON, a charming light Fuchsia with white tube and sepals, the latter semi-reflexed; single corolla, bright rosy carmine shaded magenta.

OVID, short coral-red tube and sepals, the latter broad and well reflexed; immense double white corolla, shaded magenta, crimson at base.

TRIBUTE, very short tube and completely reflexed bright reddish crimson sepals; violet-purple single corolla, veined and shaded at base with crimson-red.

NEW DROOPING FUCHSIA.

PENDANT, a very remarkable variety of strikingly weeping or pendent growth, admirably fitting it for growing in baskets, &c. The flowers, which are abundantly produced in clusters, have short tubes with long and broad extended carmine-pink sepals; corolla, single or semi-double, rich plum colour, shaded with deep rose at the base.

Price 5/- each, or the Set of Seven for 30/-.

NEW FUCHSIAS,
1896.

Sent out by **Mr. WILLIAM BULL.**

BELLONA, short tube and completely reflexed sepals of a rosy-carmine colour; large white double corolla, suffused and veined rose-pink.

CALLIOPE, large double flower; corolla, rich violet-purple, short tube and broad crimson sepals.

CERES, very short crimson tube and sepals, well reflexed, very full spreading double corolla, pale blush thickly marbled and veined with deep pink. Very distinct.

DORIS, short tube and large broad coral-red sepals horizontally extended; immense double corolla, petals reddish-purple, margins shaded with metallic blue.

FORTUNA, short tube and broad reflexed crimson-red sepals; large semi-double white corolla, heavily shaded rose and marked crimson at the base.

IRENE, short red tube and sepals; well reflexed, single reddish-violet corolla marked with crimson at base and well extended.

IRIS, short tube and broad carmine-crimson sepals, large double white corolla, shaded with rose and flaked rose-pink.

LEDA, short tube and very broad reddish-crimson sepals, irregularly reflexed; corolla bluish-violet veined with crimson and much expanded.

METIS, short dark rose tube and sepals, the latter well reflexed; double white corolla marked deep rose at base.

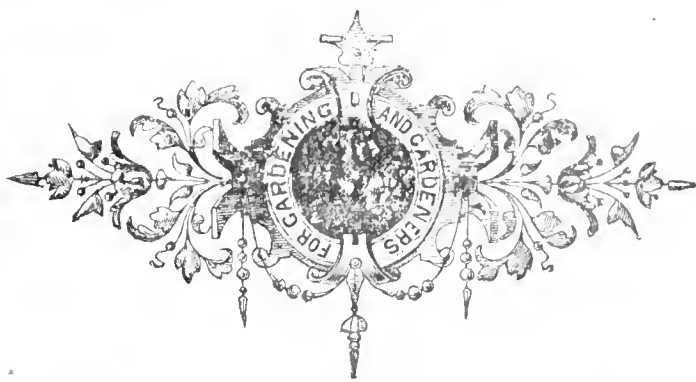
ROSALIE, short bright crimson tube and sepals, horizontally extended; large double white corolla, veined at the base with cerise-pink.

SERENA, very short rosy-pink tube, sepals completely reflexed; immense double spreading corolla, blush rose veined with deep pink.

THALIA, short tube and broad coral-crimson sepals, well reflexed; semi-double white corolla, the petals well expanded, suffused with rose and veined crimson at the base.

Price 2/6 each. The Collection of Twelve for 24/-

WILLIAM BULL, F.L.S.,
ESTABLISHMENT FOR NEW AND RARE PLANTS,
536, KING'S ROAD, CHELSEA, LONDON, S.W.



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THURSDAY, APRIL 29, 1897.

SETTING GRAPES.

ONCE more the season is approaching when the bulk of Grapes grown under glass will be in flower. It is an anxious time for the cultivator, for a bad set not only means a partial loss of crop, but also bunches which will be an "eyesore" instead of the "pride" of their grower. With healthy Vines well managed a good set with the majority of varieties may generally be insured, but a few sorts are proverbially inconsistent, as the same cultivator will often have the greatest difficulty with them in one district, while in another, though carrying out the same cultural details, the results will be singularly satisfactory.

There is, of course, always a reason why this is so, but it is not an easy matter to find it out. When the Vines are unhealthy, old, or the root action sluggish, a sufficient cause for failure may at once be advanced, but when the Vines are right on each of these points, and the houses kept at the recognised temperatures, the matter becomes somewhat puzzling. Some famous Grape growers have, after much study and close observation, found out that failures of this description are occasionally caused by a deficiency of lime in the compost forming the borders. All who have difficulties such as those above indicated still unsolved would therefore do well to give their Vine borders a dressing of lime, to be followed by a thorough watering, before the bunches are in flower. This is all that can be done in that direction at present, but the point should be borne in mind, and a dressing of lime given to the border next autumn.

In all instances borders should be examined just before the flowering period to ascertain if water is really required; if the soil be slightly dry a foot from the surface a copious watering ought to be given, but I do not like the practice of watering as a matter of course without previously testing the state of the border, for should this be in a sodden condition an additional deluge of water is quite sufficient to ruin the prospect of securing a good set. Over-anxiety is, I fear, often the real cause of the failure of many crops. The cultivator is so anxious to do all in his power to attain startling results that enthusiasm over-balances sound judgment, with disastrous results.

Let us now suppose that the errors above pointed out have been avoided, and that we have to deal with healthy Vines with plenty of bunches, little difficulty should then be experienced in securing a good set.

I have at various times tested every method I have heard or read of for securing a good set of Muscats. In bright weather a perfect set may be obtained by lightly syringing the bunches at noon. Drawing the hand over the bunches is also a good plan, and by the use of the rabbit's tail results in every way satisfactory have been obtained; but I am convinced that neither of these practices is necessary, as shaking the rods several times daily, and at noon tapping each lateral carrying a bunch with a stick is equally effective. The only exception is in the case of very large bunches. On the points and shoulders of these I like to pass the rabbit's tail or hand, as the pollen seems to drop away from these places when the Vines are shaken.

There is nothing like plenty of fire heat for Muscats in flower. The night temperature should range from 65° to 75°, and from 75° to 80° by fire heat on dull days, in bright weather keeping the fire in check but never allowing the hot-water pipes to become cold. Air should be given in greater or less quantity throughout the day, the object being to maintain a free and regular circulation rather than a sudden inrush of air whenever the sun happens to burst out between the clouds. It is surprising how little it is really necessary to open and close ventilators even in changeable weather, provided a small amount of air is admitted just before the sun strikes the house. On cold nights the house should be closed, but during warm ones the time-honoured "chink of air" may with advantage be left on. Many Grape growers seem to entertain the opinion that the atmosphere of a house in which the Vines are in flower cannot easily be kept too dry. This, however, is a mistaken idea which is gradually disappearing. Where the old order of things remains it is a fruitful source of bad attacks of red spider and an aid to the production of imperfectly fertilised berries, instead of having as intended an opposite effect.

It must, I think, be apparent to anyone who has watched a house of Muscats in flower that the tender foliage cannot endure with impunity very high temperatures, without a certain amount of atmospheric moisture is also kept up. If this is not done the energies of the Vines are crippled, the leaves become flabby, and therefore unable to perform their functions at a critical time. Under such conditions how is it possible to obtain a satisfactory set? If we consider thoroughly the reason why a comparatively dry atmosphere is maintained at flowering time, it will not be difficult to so arrange our treatment as to secure the object in view without injury to the Vines. We want the pollen of the bunches in flower to be thoroughly dry by noon, so that when shaken it disperses in the form of dust, and settles upon the stigma of each flower. When this has been accomplished dry atmospheric conditions are not necessary for the next fifteen hours.

In practice the plan I find answers perfectly is to sprinkle the house freely at 9 A.M., after the Vines have been shaken; at noon tap each lateral with a stick, and early in the afternoon, when ventilation is reduced, damp the floor of the house thoroughly, and syringe the walls should the weather be bright. A moderate damping is again given in the evening. Other varieties of Grapes which do not need such high temperatures only require, of course, a proportionately less amount of damping.

The night temperature for these should range between 62° and 65°, with a rise of 5° during the day. Alnwick Seedling from its peculiar construction requires an extra amount of attention at the flowering period, as the tiny caps which cover the flowers are not generally thrown off naturally, as in the case of other varieties. The pollen is also scarce. A good set may, however, be secured if the rabbit's tail is passed over other varieties in flower till it has become charged with pollen, and then drawn over every part of the bunches of Alnwick Seedling. Foster's Seedling is often considered a bad setter, and at one time I used to draw the hand

lightly over each bunch, I am now content with tapping the laterals, which results in a perfect set.

In the case of large bunches of Gros Guillaume, Trebbiano, Black Hamburgh, and Buckland Sweetwater, I use the hand or rabbit's tail, as there is a danger that some berries at prominent points do not get properly fertilised. Gros Colman, Madresfield Court, and Gros Maroc are as a rule good setters, and are quite satisfactory when given the occasional shake. Lady Downe's is, according to my experience, somewhat uncertain; but passing the hand over the bunches is the best aid to fertilisation I have yet tried. Before concluding let me repeat that unhealthy Vines and deficient root action are, I believe, in nine cases out of ten, the principal cause of the failure to secure a good set of Grapes. Those, therefore, who experience difficulty in this respect must first establish their Vines in perfect health before they can hope for greatly improved results. The science of Grape growing is simple indeed if cultivators would not play "fast and loose" with the principles which underlie successful fruit culture generally.—POMONA.

TREATMENT OF SEEDLING PLANTS.

AFTER seeds of half-hardy and tender annuals, greenhouse perennials and others that may be sown in spring, have successfully germinated, the seedlings under favourable conditions of growth soon advance in size. Provided each little plant has sufficient room for its first seed leaves and the development in their early stages of the rough leaves which immediately follow, there is little cause to fear injury to the seedlings. But where seedlings, whether from avoidable or unavoidable causes, have grown too thickly together, the first opportunity must be taken to afford the proper amount of space which is so desirable and essential to the satisfactory progress of all seedlings.

If crowded the young tender stems lengthen in their endeavour to carry the leaves where plenty of light can be obtained. In doing so they naturally become weakened, and the whole plant is then more likely to succumb to any adverse influences. The moral then with seeds is to sow them as far as possible thinly. If sown more thickly than desirable, and the seedlings when germinated are crowded together, the greatest possible care should be afforded not to keep them in a temperature higher than necessary. At the same time give them every assistance in supplying unobstructed light in a position near the glass, whether that is a frame, greenhouse, or stove.

In regulating the amount of light powerful sunshine must be taken into consideration, affording shade from its drying or burning influence in the case of any seedlings to which an excess would be injurious. The seedlings might receive direct injury, or the soil in which they are growing rapidly lose its moisture by evaporation. Rational treatment in the early stages prevents injury and assists the little plants to assume a sturdiness which is helpful in re-establishing them in boxes, pans, pots, or frames. Moreover, the work of pricking out or transplanting can be done earlier and with smaller examples than when drawn or spoiled by crowding.

The preceding remarks apply to plants the majority of which are raised from seed every season in spring, and are grown afterwards for various purposes indoors and out. For the greenhouse, Begonias, Gloxinias, Streptocarpus, Fuchsias, Cyclamens, Primulas, Cinerarias, Petunias, and Coleuses are included. For the flower garden, Stocks, Asters, Marigolds, annual Chrysanthemums, Zinnias, Dahlias, Scabious, Carnations, Helichrysums, Pansies and Violas. In the case of vegetables, special treatment of young plants or seedlings is only needed in frames with Celery, early Cauliflowers, Brussels Sprouts, Lettuce and Tomatoes.

It frequently happens that much benefit is derived from pricking out or transplanting, other than that received from increased light, air and space. The roots like to ramify in fresh soil, and the stems of some plants, for instance Tomatoes, may be sunk deeper in the soil than formerly with advantage. Additional roots issue from the buried stems. This serves to strengthen and to dwarf the plants. It may be adopted with most fibrous-rooted plants, but not with seedling bulbous or tuberous-rooted plants like Cyclamens, Begonias, and Gloxinias.

The seeds of Begonias, Gloxinias, and Primulas frequently germinate irregularly, and it follows that the seedlings cannot all be transplanted at once. Choose the most forward as they become large enough for the purpose. This can usually be done, with a little care, in lifting out those that are ready with a small notched stick or raising gently with a flat-pointed label. Leave the smaller

undisturbed. The last to germinate are usually the choicest varieties, of which care ought to be taken.

The compost suitable for pricking out choice and tender perennials should be light, open, and sandy; sweet leaf soil and fibrous loam in equal parts, with a liberal addition of silver sand, is a mixture in which almost anything in a young state can freely make roots. A medium, regular condition of moisture must be kept. This is readily attainable in a suitably moist atmosphere such as a vinery or intermediate stove temperature at this season. The practice of lightly syringing the small plants and soil may be daily resorted to for affording the necessary moisture without unduly saturating the soil. The limited supply of roots which the seedling plants have at first are easily catered for, provided the atmosphere is not too dry, and the soil when placed in the receptacles was moist throughout.

The soil should be placed in firmly, though not pressed hard. Provide efficient drainage, so that the more copious supplies of water required when the plants become larger may readily drain away. A fair amount of subdued light in a position somewhat removed from near the glass may probably render direct shading from sunshine superfluous. Should the shading, however, be required it must not be neglected, either in placing it on or taking it off. Harm may be done in both ways, and the careful grower will hit the happy medium as each day requires it. It is best to dispense with as much shade as possible compatible with the health and progress of the plants.

The majority of half-hardy plants are considerably benefited in habit, sturdiness, and rooting power by judicious transplanting from the seedling pots and boxes. As a matter of fact, it is impossible to grow many of these without this desirable assistance. Boxes, pans, and frames may be employed according to the requirements or convenience. For accommodating boxes or pans a frame or cool house is necessary to afford a start. Low lean-to frames partly filled with manure and surfaced with several inches of good soil will accommodate hundreds of Asters, Stocks, Marigolds, Zinnias, annual Chrysanthemums, Tagetes, Phlox Drummondii, Helichrysums, Larkspurs, Indian Pinks, Pansies, and Violas. Prick them out about 3 inches apart. Old potting soil made moist and placed firmly on the manure is the most suitable material.

Boxes and pans may be lightly drained with a few crocks, and over them a layer of flaky manure or leaf soil. Fill up with compost pressed down and made smooth on the surface. They are then ready for the plants, which may be inserted with a wooden dibber, giving them space according to the habit they are known to assume, placing them in lines across the boxes. If the compost is used moist, as it should be, heavy watering at first is not necessary. The plants and soil can be maintained healthfully moist by syringing, also by keeping the frame or house rather closer for several days, and if really necessary give a light shading during the hottest sunshine to any young plants that do not appreciate excessive light.

When fairly well established discard shading and afford air in gradually increasing abundance. Finally remove the lights from the frames or place the receptacles outdoors to thoroughly harden the plants before planting out. The period after which half-hardy bedding plants are safe for full exposure is the 24th of May in the northern counties, and a few days earlier in the southern. There are sheltered positions, however, where May frosts do not reach, such as in the vicinity of shrubs or buildings. These may be utilised for temporary protection. In the absence of natural shelter or the scarcity of frames or light canvas coverings supported on framework are necessary to harden the plants in boxes or pans. Beds for pricking out seedlings may be formed and temporarily protected until the plants are safely established.

Earlier in the season Lettuce plants raised thinly in boxes are finally pricked out in beds of good soil, affording the protection of a frame. Due supplies of air must be given on all favourable occasions to promote sturdy growth, dispensing with protection as soon as possible.

The early and main crop Celery plants are usually obtained by growing them in boxes or frames in generous soil, placed on a slightly warm bed of manure; but this is not absolutely essential, though it is desirable that the young plants should root into a few inches of decayed manure under the soil. The manure may be placed on a hard bottom, which will promote fibrous rooting, and the plants when ready easily lift, with material adhering to the roots. In the absence of convenient frames place the seedlings in moderately deep boxes, employing a layer of decayed manure one-third the depth, filling the rest of the space with good soil. It is needless to say that Celery plants prepared on these lines are superior in every way to those left without special treatment in the early stages.

Tomatoes, as above indicated, are greatly improved in sturdiness by a few transplantings or repottings, sinking the stems lower each

time. Roots issue freely from the buried portions of stems, and benefit the plants considerably.

Brussels Sprouts, Cauliflowers, Cabbages, Savoy and other Brassicæ require to be strengthened by pricking out the seedlings when the first rough leaves are being formed. As a rule none of these, except those intended for exceptionally early supplies, requires the aid of glass. Good fertile soil and an open sheltered situation should be selected. Place the seedlings 4 inches apart, with the roots straight down. Give water occasionally and keep free from weeds, which will be all the attention needed until large enough to plant finally.—E. D. S.

ASPARAGUS CULTURE.

INSTANCES are known where Asparagus beds have given satisfactory results for fifty years. Certainly thirty years is not too long to expect them to flourish under suitable conditions. Almost any kind of soil may be made to grow Asparagus by suitable preparation; but a deep friable loam, with a porous subsoil, is usually preferred.

Where the soil is naturally wet, or even heavy, and consequently retentive of moisture, it ought to be trenched a yard deep, and raised 9 inches above the natural level to insure the roots against premature decay. Asparagus cannot be successfully grown in a situation that is in any way shaded. An open position, away from high walls or overhanging trees, is preferred, as all the sun possible is necessary to insure success. Asparagus is usually planted in beds 4 feet wide; this size admits three rows of plants, one in the centre, and the two outer rows 10 inches from the edge.

As trenching proceeds the surface soil should be retained in the same position. If the soil 1 foot below is heavy in character it is advisable to remove the worst of it, using an equal bulk of roadside refuse and decayed vegetable matter, thoroughly mixing this with the surface soil. The beds ought to be prepared fully two months before planting to allow the soil to settle down to near its natural level. One month before planting fork in 9 inches below the surface a liberal dressing of farmyard manure. If more beds than one are to be made alleys 2 feet wide should be allowed between them. This space can be profitably employed during the spring and early summer in the growth of Cauliflowers or Lettuce, the rich nature of the soil being just suited to these quick growing vegetables.

If Asparagus is required quickly two-year-old plants should be employed, but where time is not so much an object plants raised from seeds sown the second or third week in April give satisfactory results. The early part of April is a good time for planting. Everything should be in readiness when the crowns are received from the nursery, the surface of the bed raked fine, and the rows marked out, as exposure of the thick, fleshy roots to drying winds is most injurious. Choose a dry day for planting, mark out the rows, then with a spade throw out the soil 3 inches deep, and sufficiently wide that the roots can be spread evenly, keeping the crown of the plant in the middle of the row. Cover the roots with some friable compost such as road grit and decayed vegetable matter, or old potting soil to which sand has been freely added. Return the soil to the row over the special compost, and rake the beds level. A distance of 15 inches should be allowed between the plants in the rows.

In the event of the weather being both hot and dry during May mulch the surface of the beds with 2 inches of half-decayed horse manure. Nothing is better than the materials from a spent Mushroom bed for conserving the moisture in the soil—the object of mulching. Should the weather be exceptionally hot and dry during June and July a thorough soaking of the soil will do much towards aiding the growth, which is especially important the first year. The beds must be kept free from weeds. Cutting should not begin until the second season, but little then. Asparagus receives a serious check to growth and maturity if, as sometimes is the case, the “grass” is much blown about, and consequently the crown of the root injured. Each strong stem is worthy of a stake, or short Pea sticks thrust in the ground at intervals will afford the plants useful support.

Early in November the stems ought to be thoroughly ripe, and should then be cut down to within a couple of inches of the soil. With a fork lightly break the surface, and cover with 3 inches of half-decayed stable manure. Some persons dig out the soil from the alleys, using it to cover the manure. This, in my opinion, is not a good plan, as many of the roots are injured in the alleys. The manure affords ample protection against frost without the addition of soil.

The first week in April rake the bulk of the manure into the alleys, where it will decay and provide a capital rooting medium for the Cauliflower and Lettuce alluded to earlier. A sprinkling

of common salt over the beds when raked down in the spring will prevent weeds and otherwise act beneficially. Liquid manure is a good stimulant for Asparagus when in full growth. It is on growth made during July on which the next year's crop of heads so much depends. Too many persons continue cutting Asparagus longer than is good for the plants. The middle of June is the time to cease. Connover's Colossal and Sutton's Perfection are two of the best varieties with which I am acquainted.—E. MOLYNEUX

HARDY FLOWER NOTES.

VIRGIL'S Tityrus, reclining peacefully under the canopy of the spreading Beech, is sometimes taken as typical of rural felicity. Happy and prosperous, he was the envy of less fortunate swains whose lot it had not been to enjoy the favour of so powerful a patron. The writer is in less happy mood. He is reclining too, but under his own roof-tree, and between the sheets, and so cut off from the opening of the flowers, and the glad sights and sounds of the garden in April. Relapse after relapse of influenza culminated in an attack which acted so injuriously upon a slight injury to one of the lower limbs, that he has no prospect of moving about for some days at least. Thus the present notes cannot fail to lack the freshness they might have had if inspired by the pleasures of the garden itself. By dint of craning one's neck or by supporting oneself with a chair for a second or two in course of a limping progress to and from the fireside while the bed-making is in course, we can catch a glimpse of the garden now displaying its spring treasures.

It is only a glimpse, and if, like Oliver Twist, we ask for more, it is only in part given by some cut flowers brought in, or by a verbal report from the *cara sposa*. All this is sheer egotism, however, and is only excusable on account of our desire to apologise for what must be the dulness of the succeeding lines. Though cut off from the garden for the time, we know well what flowers are to be seen now. The Trumpet Daffodils have not yet passed away to their summer's rest, and still droop their heads gracefully or stand boldly to invite the gaze of the passer-by. The short-cupped varieties are now in profusion to bear them company, and to help to cheer and charm us. We study their beauty joyfully, yet wistfully, as we look at the cut flowers before us. Joyfully because of their exceeding loveliness. Wistfully because we cannot see them as we love them best, with heaven's canopy overhead, and the soft breezes of April dallying gently with their flowers and leaves.

We hear glowing accounts of the beauty of such as C. J. Backhouse, Sensation, Duchess of Westminster, Princess Mary, William Backhouse, and others, but as we know them we deny ourselves the pleasure of having them brought into the house, preferring rather to let them seed in hope that we may be able to add one or two flowers to the improvements all who love the Daffodil look for in its blooms. The weather has improved, and April now woos them less roughly. Not with gentle words and soft movements, but with hailstorms, drenching rains, and wild winds did the month at first court the Daffodils. Enpress and some others of similar habit maintained their dignity, but the white Trumpets, such as cernuus, Colleen Bawn, albicans, Mrs. J. B. M. Camm, with other modest flowers, bore the rough treatment with gentle forbearance, looking down to the sodden ground as if appealing for more gentle treatment. Fortunately, every day was not the same, and when the sun shone for a few hours all was changed.

The honey bees from their hives, the humble ones from their holes in the hedgerow bank, came into the garden and buzzed noisily among the flowers, bearing them down by their weight. Even the tortoiseshell butterfly, tempted by the bright sun to essay flight, fluttered from flower to flower. What was there to bring these welcome marauders to the garden's bounds, inducing them to leave the wider pastures beyond? Shall we tell? We have told of the Daffodils, but they form not a tithe of the garden's bloom.

Great clumps of Arabis, which we should call "like snow" were it not for the yellow seminal organs, abound, and to these the winged creatures which add so much to the garden's pleasures hie their way. It is a "common" flower, and so by many thought not worth growing. Common though it is, this Rock Cress is not often seen at its best, forming compact mounds of flowers among which not a leaf is to be seen. Here on the dryish soil and generally on a slightly raised position it is perfect in its season.

So, too, it may be said of the Aubrietias. I sometimes think that he who can bring such flowers as these into greater notice confers upon his countrymen and countrywomen a true boon, giving them a new interest in this work-a-day world, a fresh zest in life, and often a key which will open the way to a store of hidden treasures. The brightest of our Aubrietias are bright indeed, and make the old *A. deltoidea* look dull and dowdy beside

them. I know a little front garden in the outskirts of a neighbouring town where some beds are edged with this old species, and every time I pass it I feel a strong inclination to advise the owner to replace it with some of the brighter kinds, such as Hendersoni, Eyrei, or Leichtlini, which come fairly true from seed. I am more tolerant of a few of the pale varieties in my own garden, but I have many of the newer plants in all positions. At present they are bright masses of colour, delightful in every way, and especially on rockwork, giving little or no trouble beyond a clipping over with the scissors after flowering.

Charming little flowers are some of the Muscaris, or Grape Hyacinths. The common *M. botryoides* can hold its own with almost any of them for beauty of colour, but with our usual perversity and craving for "something new" we seek to add others to our gardens. Some of these are inferior, but others have points of beauty which make them acquisitions. Of the latter class is *M. conicum*, which I was pleased to see recently received an award of merit from the R.H.S. when exhibited by Messrs. Barr & Son. Very fine in its way is this bright blue Grape Hyacinth, which I have grown for several years. Another Muscaris appears to have been shown lately as *M. botryoides candidum*. I have not seen any plant under this name, but from the description am led to think that it may be the same as a variety I have here as *M. b. carneum*. This has hardly a tinge of the colouring in it which could be indicated by the name *carneum*. The single flowers on the spike are large, and the spike itself is larger than the small-flowered *M. botryoides album*. I have a good many of these Grape Hyacinths, but one fears the names are far from reliable in any numerous collection.—S. ARNOTT.

ARRANGEMENT OF HOUSES FOR EFFECT.

THIS is often done in a formal style, quite contrary to Nature's plan, without any regard to contrasts of form and colour, which are absolutely essential where a miscellaneous collection of plants is found. If it be a large stove all the walls should be hidden with greenery, and the plan of having turf behind a screen of wire netting in which may be planted *Selaginella denticulata*, *Ficus repens*, *Adiantums*, *Nephrolepis*, *Nephrodiums*, *Begonia Rex*, and *Pothos argyrea*, with others is excellent. The roofs should be covered by *Allamandas*, *Bougainvilleas*, *Clerodendron Balfouri*, *Stephanotis*, *Ipomœa Horsfieldi*, *Passiflora princeps*, and others in variety, which must not be tied to the extreme tips, as is often done, but allowed to hang with freedom and grace to display their flowers as if growing in their own native woods.

The pillars should be clothed with such plants as *Gloriosa superba*, *Cissus discolor*, *Paullinia thalictrifolia*, or *Dipladenias*; while underneath open stages *Fittonias* and *Tradescantias* will thrive. There should also be sufficient plants for draping the extreme front of the stages, for which purpose *Panicum*, *Selaginella cæsia*, and *Tradescantia zebrina* are admirably adapted. The collection should be arranged as Nature arranges her trees, shrubs, and rocks, in masses of irregular outline and height. Noble foliage or specimen flowering plants ought to stand distinct, as princes amidst their peers, so as to give boldness and character to the whole.

The centre of the house must be the most prominent feature, as the focus on which the eye will rest from either end. There should be groups of colour and groups of greenery, and plants of arching and delicate outline will be found useful to break the formality of more rotund specimens. Of course the tallest plants will be at the back or the centre, as the case may be. But the great point is to avoid having a bank of plants as is often seen, as if someone had been using the shears so as to have everything exactly as we see a bank of clipped Laurels. White-leaved foliage plants should play a prominent part to lighten and break up more sombre hues, just as white flowers are used to prevent doubtful colours clashing. I think, instead of the dotting system or alternating plants, it is best to arrange them in small groups of threes or fives or even greater numbers, according to size. Then, instead of the eye wandering in bewildering amazement, it will be able to rest and take at a glance the design, proportion, and harmony of the whole.

In regard to conservatories or flowering houses the same general remarks are applicable, with the qualification that there will be less foliage and more flowers. All naked surfaces should be covered, pots must be hidden as much as possible, and other appliances for elevating the plants which sometimes becomes necessary. In addition to the remarks of contrast of form applicable to the stove we must have contrasts and harmonies of colours. Keep apart all shades of red, even in the case of pink and white in the same flower. Do not place near pink crimson, scarlet, or purple shades. Hues of magenta are very bad to arrange, as they appear to overpower all other colours. At the present time the semi-double Azaleas (which are to be preferred to the single, more spotted sorts) must not be mixed promiscuously, but each colour or shade alone. Hyacinths in the softer shades, as pink, blush, pale yellow, pale blue, and white, make a very pleasing group.

It ought to be borne in mind the two colours together must be contrasts; one must be vivid, whilst the other is soft and delicate. White being a neutral tint blends with any colour. The striking contrasts are red and green in their various shades, purple and yellow, crimson and yellow,

blue and orange, violet and yellow, the delicate shades of *Azalea mollis* together make a charming whole, but in mixing for harmony avoid dark shades of any colour, and have not less than three colours in harmony. I noticed a fine bed of Hyacinths in Regent's Park two extreme shades of blue in contrast—viz., Charles Dickens, dark blue, and Czar Peter, pale porcelain blue.

In arrangements for effect every branch, leaf and frond must have its place, and the hand should be used to relieve any overlapping. But at the same time our arrangements must not be too thin, because Nature, even in temperate climes like our own, is profuse and luxuriant. Plants flowering without leaves ought to be arranged rising as it were from a bank of greenery.—F. STREET.

PRIMULA CALYCINA.

THIS *Primula* has long been known in gardens, where it is often confounded with *P. Wulfeniana*, a totally different plant, and from which it is easily distinguished, even without the aid of flowers, by its longer and very irregularly margined leaves. It grows readily enough on the rockery in almost any position, but unless in exposed situations is rather a shy flowerer, and some can only manage to flower it by giving it a good roasting during the summer months, meanwhile supplying water very sparingly. It seems to prefer being wedged in between hard pieces of granite in rich, stiffish soil. It forms rosettes of long ovate-lanceolate leaves, of a half-weathered green colour, perfectly glabrous and shining, with a curiously wavy margin. The flowers are large, of a beautifully clear lilac, generally three or four together on short stalks, at the base of which are long linear bracts. The calyx is about an inch long with narrow bluntish sepals. It is a native of the Southern Alps, and usually flowers in May and June. This brief description with the woodcut (fig. 74) will no doubt be what "*Primula*" requires.

FORCED BEANS AND EARLY RADISHES.

ON the 21st inst. thirteen members of the Fruit and Vegetable Committee of the Royal Horticultural Society examined a collection of French Beans growing and bearing in one of the houses at Chiswick. About thirty varieties were grown under identical conditions. Five seeds of each were sown in 10-inch pots on January 15th, three pots of each variety. There was great diversity in growth and bearing. Some of the plants, such as the *Crimson Flageolet* or *Canadian Wonder*, with others not half so good, were considered, except under special circumstances, fully too tall, and certainly did not give such a good yield of pods as some of the dwarf and sturdier growers.

But while a few were regarded as too tall, considering the number of pods they produced, still more were too dwarf, several of these having a stunted appearance, and though the pods of some of them were numerous they were entirely too small for approval. Most of these diminutive varieties were sent from Germany, and, with one exception, are not in the least likely to find favour with British cultivators. There were a few of a similar character from France, but these on the whole were better, but did not reach the Committee's standard of usefulness—long, deep green, substantial, fleshy, brittle pods, and plenty of them. Mottled pods found no favour, one of the members of the Committee observing that if he took such to the French cook he had to supply the *chef's* shoulders would go over his head. Many varieties had waxy-yellow pods, but most of them miserably small, and only one stock merited recognition. Three marks—equivalent to awards of merit—were given to the following, whether any of the varieties had been previously honoured or not.

Veitch's Early Favourite.—A free yet sturdy grower, and good bearer of fine green pods. Ready April 14th.

Ne Plus Ultra.—Too well known to need description, and not easy to excel. Ready April 12th.

Osborne's Forcing.—Dwarf and free; an old favourite, not likely to soon go out of fashion. Ready April 12th.

Wythe's Improved Mohawk.—A free yet sturdy grower, and abundant bearer of large green pods. Ready April 14th.

Emperor William.—Very dwarf, with broad, flat, dark pods. The earliest of all. Ready April 1st. In contrast it may be stated that *Canadian Wonder* was not ready till April 19th.

Barr's Golden Wax.—A good grower and free bearer of long wax-like pods, distinct, and by far the best in its section.

It may be said that the maximum marks were granted unanimously except in the case of *Emperor William*, when they were awarded by 7 votes to 2. Some members appear to have been neutral.

[Pods of the six varieties named were placed before the Committee at the Drill Hall on the 27th inst., and awards of merit recorded.]

Another variety deserves mention—namely, *Covent Garden Early Negro*. Only a few seeds germinated, but some of the resulting plants produced such good and deep green pods that the Committee wished the variety to be tried again.

RADISHES—AN ADVANCE.

Growing in an unheated brick pit in the Gardens some half dozen varieties of Radishes were examined. Three of these were from France,

and for comparison were also sown the French Breakfast and a couple of First Early varieties from home stocks. The same quantity of seeds of each were sown in drills the same distance asunder on March 17th. During their whole period of growth the plants were exposed throughout the day, the sashes placed over them at night. The results of the small trial are particularly noteworthy, and without doubt two valuable new Radishes have now had their merits fully tested. These are what may be shortly termed *Vilmorin's Extra Early Olive-shaped Scarlet* and *Extra Early White Forcing*. These were grown in the Gardens last year and sent to the Drill Hall, awards of merit being granted for the samples.

On seeing them growing last week by the side of other standard varieties, the superiority of the two "*Extra Earlies*" from France was so manifest that *first-class certificates* were unanimously granted for them. Sown as we have said on March 17th, they were ready for use on April 21st. The others could not be ready for ten days, and some of them a fortnight after that date; and further, when they are ready



FIG. 74.—PRIMULA CALYCINA.

there will not be half the number of good Radishes that were produced by the "*Extra Earlies*." Nor is the difference due to any imperfection in the seeds, for they all germinated alike well. The gain in the one case, and loss in the other, is wholly due to the leafage of the plants.

The leaves of the certificated varieties, though stout, are very small, so much so that when expanded their surfaces were fully exposed to the direct action of light. Each leaf was thus able to perform its functions in the preparation and deposition of organised matter, and hence the quick formation of the fleshy bulb-like roots.

Very different were the leaves of the ordinary "*First Early*" varieties; they were and are four times the size, the inevitable result being a crowd and a crush, with consequent spoliation and total inability to provide the necessary material for the formation of the coveted bold crisp early Radishes. This is a little lesson which demonstrates the importance of sound unobstructed developed leafage—not in Radishes alone, but in everything.

The practical outcome of this small trial of Radishes, under absolutely the same conditions in every respect—time of sowing, soil, exposure, and distances of plants—is that the "*Extra Earlies*" represented a crop of at the least 100 per cent. greater value (and in fact a great deal more) than the later sorts.

As Radishes cannot possibly be too early these new extra early French introductions may be expected to find their way into most gardens, while growers of Radishes for sale will, if they are wise, give them a good trial at the earliest opportunity. They will yield far more bunches from a given area of land, at a decided earlier date, than the varieties usually grown, and in quality as good—at least, those were at Chiswick—as the most fastidious could desire.

There was another French Radish called the "*Leafless*," and nearly merited its name. The leaves are like diminutive abortions, yet produced early roots. It is a mere curiosity, but the two varieties certificated are serviceable acquisitions, and as such well worthy of the attention of cultivators.



ROSE SHOW FIXTURES FOR 1897.

- June 15th (Tuesday).—Ryde.
 „ 18th (Friday).—Portsmouth (N.R.S.).
 „ 24th (Thursday).—Colchester.
 „ 25th (Friday).—Maidstone.
 „ 26th (Saturday).—Windsor and Dorking.
 „ 29th (Tuesday).—Canterbury, Sutton, and Westminster (R.H.S.).
 „ 30th (Wednesday).—Croydon, Ealing, and Reading.
 July 2nd (Friday).—Crystal Palace (N.R.S.).
 „ 7th (Wednesday).—Glasgow, Hanley,* Hitchin, Reigate, Leeds,† and Tunbridge Wells.
 „ 8th (Thursday).—Bath, Gloucester, Harrow, Newcastle-on-Tyne, and Woodbridge.
 „ 13th (Tuesday).—Wolverhampton.†
 „ 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 „ 17th (Saturday).—New Brighton.
 „ 22nd (Thursday).—Halifax and Trentham.
 „ 27th (Tuesday).—Tibshelf.

* A show lasting two days. † Shows lasting three days.

The above are the only dates that have as yet reached me. I shall be glad to insert in the next list any further fixtures that may be sent me, whether of Rose shows or of horticultural exhibitions where Roses form a leading feature.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

A "ROSE-DAY" PROPOSAL.

I HAVE seen in some paper a list of all the proposals which had been made to commemorate the Queen's Diamond Jubilee. They ran into hundreds, yet I boldly make another. It is a simple and sentimental proposal for the decoration of our persons on June 22nd. I think the British floral emblem—the Rose—should be worn by everybody on the celebration day.

The Rose crop will be in all its glory at the end of June, and no one need be without a bloom who has a penny to spend. I further suggest that June 22nd shall be always known as "Rose Day," in honour of England and good Queen Victoria. Yes! I think "Rose Day" ought to come. As the Poet Laureate says in his best prose work, "The Garden That I Love" (page 96), "The Rose is the typical flower all the world over, and the mind cannot get away from its representative personality. Withal in most gardens the Rose enjoys but a brief reign, and much briefer than that of many another flower. But so long as it blooms in profusion it throws into the shade all other pretenders." Just so. "Rose Day" would throw all other celebration days into the shade.

The Rose is a royal flower, and should be used on such a truly royal and national occasion this year, and for all time.—F. R. H. S.

ROSES UNDER GLASS.

ALTHOUGH these are now in full beauty, whether in pots or planted in the borders, there is much work to be done if the plants are to be kept clean and healthy, so as to give a useful second crop of flowers, and be in the best condition for early ripening, to form suitable plants in time for blooming through the coming winter.

It is the early pot Roses of spring that can be most readily brought into condition for winter flowering, and as it is useless attempting to bloom any but specially prepared plants in the dead of winter, a few words upon this subject may be seasonable. In the first place we need to pay some attention to selection of varieties. Very double Roses cannot be so successfully opened as those with fewer petals, and these last a long time during the winter, being far less evanescent than during the brighter and warmer days of early summer.

Isabella Sprunt, pale yellow; Safrano, apricot; Madame Lambard, red; Niphetos, pure white; Fiametta Nabonnand, white, carmine shaded; Général Jacqueminot, deep red; Sylph, white, tinted with peach; Papa Gontier, rosy crimson; G. Nabonnand, salmon and peach; Amazone, deep lemon yellow; Augustine Guinoisseau, pale blush white; and Souvenir de Wootten, very deep red; are twelve grand pot Roses for forcing.

Six good climbers are found in Maréchal Niel, golden yellow; Climbing Perle des Jardins, deep straw yellow; Climbing Niphetos, pure white; William Allen Richardson, orange and apricot; Reine Marie Henriette, deep crimson; and Madame Abel Chatenay, fawn pink shaded with salmon.

These more vigorous varieties can be grown in pots provided they are 8 to 10 inches across. When grown on the long rod system—i.e., cutting down the growths as soon as they have flowered, and encouraging more long rods from the base, there are few Roses which force with greater satisfaction. The main point is to secure well ripened wood, and if growth be hurried along until the early part of July the plants can then be removed to the open air and gradually ripened. We find it a good plan to stand the climbers, half-plunged, against an Arbor Vitæ hedge, securing the rods by stretching a wire or string around several plants, and fastening to the hedge.

Before placing the plants outside a dressing of soot is spread over the soil they are to stand upon. This prevents worms entering the pots.

Standing the pots upon pieces of slate does not answer so well, as it often happens that the pot fits closely, or a little soil causes stoppage of the drainage, and the pots become more or less sodden. It is very easy to place a board in front of the pots, and fill in between them with ashes, cocoa-nut fibre refuse, or other easily handled material. Half plunging of this description is a great safeguard against sudden drought, and protects the lower and most important roots. We need to keep them rather dry as soon as there is a natural cessation of growth, but to do this too suddenly, or allow them to become very dry one day and wet the next, is not calculated to secure an efficient ripening.

While in full growth liquid manure may be applied freely if weak, and will be far more beneficial than the same amount of stimulants given in stronger and less frequent doses. The same treatment applies to all pot Roses; we must grow them carefully, and not partly neglect them simply because the bulk of their present beauty is past.

There should be no need to repeat the oft-written advice respecting the great importance of early and prompt measures as regards our many insect foes. Shading will soon be necessary, but it should be very slight—just enough to break the glare of the sun is ample. Roses enjoy plenty of light, and it is only the burning power of sunshine through clear glass that we wish to check. A slight shade renders ventilation more easy and safe. We must give some air during this season, but it is most difficult to regulate when a few minutes' bright sun causes the temperature to rise 20° to 30°. Damping down is not sufficiently practised; a moist atmosphere is a great help during bright weather, and if a little liquid manure be used the ammonia feeds the foliage, imparts a healthy gloss, and is a great advantage all round.—PRACTICE.

CAMELLIAS AFTER FLOWERING.

THERE can be no doubt as to the important bearing the treatment of Camellias after flowering has upon future success. Next season's crop of flowers may be reduced 50 per cent., or entirely, simply through faulty methods of procedure at the present stage, and I propose giving a few notes that may be of assistance to those whose experience of these beautiful flowers is comparatively limited. I have been growing them for upwards of a score of years, and shall speak from practical experience.

When Camellias are not in flower they may be syringed frequently with advantage, and this generally keeps the foliage clean and healthy; but glutinous matter sometimes adheres to them, and syringing will not remove it, yet it is absolutely necessary to the health of the plants that it be removed, and it should be cleared immediately flowering ceases. Sponging is the surest way, using some simple mixture. Before beginning to sponge syringe the plants with water several times to soften the dirt, and during the operation of sponging the whole of the foliage must be kept constantly wet, as it is so much easier to remove the dirt when it is soft and wet than when hard and dry.

Equally important is having the roots in proper order. No Camellia should be planted out in a bed or border without the greatest care being devoted to the drainage, as it is only in the first place that this can be properly treated, and there is no easy way of rectifying the drainage of plants which are growing in a bed. Wherever the soil has become stagnant or in bad condition do not fail to examine and rectify the drainage. Planted-out specimens are very liable to suffer from being too much disturbed at the roots, and in trying to improve the drainage it can better be put round the sides than directly under the plant; and if the vacancy made to permit this is filled with good soil an improvement will soon take place. Firm soil is also necessary to the success of the plants; indeed they will not remain long in good health if the soil is loose. Seeing that the drainage is right and the soil firm should have annual attention as the plants cease flowering. The soil may be allowed to become slightly dry before beginning to work with it, but after the operations suggested are finished it must not on any account be permitted to become dry; and from the day the plants begin growing until the flower buds are well developed the soil at the roots must be kept constantly sweet and moist. In some cases the growth begins before the blooms are all over, but the main growth rarely commences until then.

Apart from cleaning the foliage in the first place, they should be frequently syringed with clear water afterwards, and once daily is not too often in good weather. I do not approve of keeping them very close, as the growths are liable to become very long and weakly, and this also applies to plants grown under a dense shade. We have not shaded a Camellia for many years, and we have always plenty of blooms from November to April. Besides the present being a good time to clean the foliage and to place the plants in a proper position for another year, repotting and planting may also be done.

Sometimes when plants are in bad health in pots their growers think they would do better if planted out, but my experience leads me to say that it is easier to improve a Camellia in a pot than when planted, and I should not be inclined to plant a specimen in a half-dead condition. The plan would be to get it into good health in a pot and then plant. The object of planting out is to secure large specimens which will require less attention in watering than those in pots, and probably all the finest in the country are planted out. Success is certain when good plants are used and the operation carefully performed, but all depends on that. The bed must not be less than 2 feet 6 inches in depth, and at least 6 inches of this should be taken up with carefully arranged drainage. A layer of fibrous turf may cover this. The plants need not be placed too deeply, and the whole bed filled firmly with a mixture consisting of equal parts of peat and loam to which has been added a liberal dash of

coarse sand. This mixture will suit Camellias under all conditions of culture.

The plants requiring potting may be divided into two classes, one being those which have outgrown the limits of their pots and need more root room, and the other those which have become sickly and failed to fill their pots with roots. The remedy for the first is to give them larger pots, and the best thing to do with the second is to turn them out, removing all loose or useless soil from their roots, and repot in smaller sized pots. There is no better way than this of improving sickly Camellias. All plants that are repotted must be shaded for a time, keeping the atmosphere in which they are placed very humid.

—M. P.

ROYAL HORTICULTURAL SOCIETY.

DRILL HALL, APRIL 27TH.

THE Drill Hall was not nearly so crowded on this occasion as has previously been the case, but the Show was, nevertheless, a very interesting one. Roses in the floral section were superb, while Orchids were of good quality, though the Chelsea specimens were much missed.

FRUIT COMMITTEE.—Present: P. Crowley, Esq. (in the chair); with the Rev. W. Wilks and Messrs. J. Cbeal, J. H. Veitch, A. H. Pearson, R. Fife, J. Willard, J. Smith, F. Q. Lane, G. Wythes, J. A. Laing, G. Woodward, W. Bates, W. Farr, A. Dean, A. F. Barron, and J. Wright.

Messrs. Hurst & Sons sent heads of a new Broccoli, Hurst's Early April, creamy white, close and conical. No information accompanied them, and they were passed. Mr. W. M. Russell sent fruiting plants, also gathered fruits of Russell's Early Giant Strawberry, the result of a cross between La Grosse Sucrée and Noble. They were large, dark, and corrugated, but deficient in flavour, and no award was made.

Messrs. E. Hillier & Son, Winchester, sent fruits of a handsome dessert Apple, *Hillier's Easter Orange*. Fruits full medium size, conical, greenish yellow, but almost entirely covered with broken crimson stripes and strewed with dots, though some of these at least appeared to be of a fungoid character. Stalk half an inch long, slender, deeply set in a russet cavity. Eye rather small, partially open, with flat segments. Flesh tender and pleasantly flavoured. An award of merit was granted unanimously.

Mr. Owen Thomas sent from Windsor a fruiting plant, also a dish of fine clear fruits of his new yellow Tomato *Royal Windsor*. The flavour was considered excellent, and an award of merit was granted with unanimity. A new Strawberry, Sir Trevor, the result of a cross between La Grosse Sucrée and Royal Sovereign, was also sent by Mr. Thomas. Very handsome fruits, but some of them dark crimson with prominent seeds and scarlet flesh; others bright scarlet with whitish flesh, these being particularly good. The Committee thought the variety not yet fixed in character, and it will no doubt be seen again.

Mr. G. Wythes exhibited old and new Grapes Lady Downe's, old, firm and good; Black Hamburg and Foster's Seedling, new. The Black Hamburgs were well finished, and represented excellent produce, from Vines in pots; also boxes of superior fruits of Royal Sovereign and Keen's Seedling Strawberries, as well as St. John's Figs and meritorious vegetables (silver Banksian medal).

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with Messrs. C. T. Druery, H. B. May, H. Herbst, R. Dean, G. Stevens, J. Hudson, J. Jennings, J. T. McLeod, R. B. Lowe, H. S. Leonard, C. Jeffries, J. W. Barr, C. E. Shea, J. D. Pawle, D. B. Crane, H. J. Jones, H. J. Cutbush, C. Blick, H. Turner, G. Paul, T. W. Sanders, O. Thomas, and T. Peed.

Messrs. F. Cant & Co., Colchester, arranged a semicircular group of Roses in pots. The plants were clean, healthy, and carrying brightly coloured substantial flowers. Several of the well known varieties were represented. Messrs. W. Cutbush & Sons, Highgate, sent plants of *Azalea mollis* interspersed with Ferns and Palms. Miscellaneous flowering and foliage plants came from Messrs. J. Peed & Sons, Norwood. *Ericas*, *Clivias*, *Cannas*, *Anthuriums*, *Lily of the Valley*, *Palms*, and *Ferns*, with a few *Orchids*, were included.

Messrs. Paul & Son, Old Nurseries, Cheshunt, sent splendidly grown Roses in pots. The varieties comprised *Innocente Pirola*, *Souvenir d'un Ami*, *Celine Forestier*, *Ulrich Brunner*, *Anna Olivier*, *Elsie Fugier*, and others. The same firm also sent alpine plants and cut sprays of flowering shrubs and *Amaryllis*. Mr. J. Wilson, Drewton Stray, South Cave, R.S.O., Yorkshire, staged a considerable collection of Daffodils, amongst which were many flowers of good quality. Messrs. J. Veitch and Sons, Ltd., Chelsea, staged baskets of *Cydonia Maulei*, *Exochorda grandiflora*, and *Andromeda speciosa cassinefolia*, with a splendidly flowered standard of *Cytisus scoparius præcox*. The Daffodils from Messrs. J. Veitch & Sons were of grand quality, the size and colour of the flowers being in many cases exceptional. Seedling varieties were also staged. Messrs. J. Balchin & Sons, Hassocks Nurseries, sent *Boronias* and *Coprosmas*.

Mr. Charles Turner, Royal Nurseries, Slough, staged a large number of varieties of *Primula Sieboldi*, the colours ranging from pure white to reddish purple. All the varieties were named. Alpine Auriculas in variety, *Calla Elliottiana*, and *Carnation Princess May* also came from Mr. Turner. Mr. G. Mount, Canterbury, sent some superb cut blooms of Roses, including *Maréchal Niel*, *Catherine Mermet*, *Ulrich Brunner*, *Niphetos*, *Général Jacqueminot*, and several others. Messrs. J. James

and Son, Farnham Royal, sent hybrid *Cinerarias* that were very interesting. The parents were *C. cruenta* and *Senecio Heritieri*. Plants of the beautiful *Arctotis aureola* came from J. T. Bennett Poë, Esq., Cheshunt. Flowers of *Tulipa Greigi* were sent by Messrs. R. Wallace & Co., Colchester.

Mr. H. B. May, Upper Edmonton, sent a number of *Coleuses*; and Mr. W. Rumsey, Waltham Cross, Roses cut and in pots. Foliage plants composed the major portion of the exhibit from Messrs. J. Laing and Sons, Forest Hill, though flowering plants were also contributed. Messrs. Barr & Sons, Covent Garden, made a brilliant display with single and double Tulips, staged also Alpine plants, and *Narcissi* in fine form. The firm's new variety *Victoria* was very conspicuous.

MEDALS.—**FLORAL COMMITTEE.**—Silver-gilt Flora, Mr. G. Mount, Roses; silver Flora, Messrs. Barr & Sons, Tulips; F. Cant & Co., pot Roses; Paul & Son, Roses and hardy plants; C. Turner, *Primula Sieboldi*; bronze Flora, W. Cutbush & Sons, plants; C. Turner, *Malmaison Carnation Princess May*; silver Banksian, J. Peed & Sons, plants; J. Laing & Sons, plants; W. Rumsey, Roses; and bronze Banksian, H. B. May, *Coleus*.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); with Messrs. J. O'Brien, De B. Crawshaw, R. B. White, W. H. Protheroe, H. J. Chapman, W. H. Young, F. J. Thorne, W. H. White, J. Jaques, T. Statter, W. Cobb, E. Hill, J. Douglas, S. Courtauld, H. Williams and H. M. Pollett.

Orchids were beautifully though not numerous shown by Messrs. F. Sander & Co., St. Albans. There were *Odontoglossum vexillarium* in variety, *Oncidium Marshallianum*, and others (silver Banksian medal). R. Brooman White, Esq., Ardarrock, Garelochhead, sent a superb collection of *Odontoglossum crispum* in variety, as well as *O. Andersonianum*, *O. Brassia*, and others (silver Banksian medal). Mr. Barrell, gardener to W. S. Ellis, Esq., Dorking, exhibited *Odontoglossum crispum* and other Orchids in fine form (silver Flora medal), as did Mr. W. Buchall, gardener to S. Cooke, Esq., Kingston Hill (bronze Banksian medal). Mr. A. Methven, gardener to the Marquis Camden, Bayham Abbey, sent a magnificent plant of *Dendrobium thysiflorum*.

CERTIFICATES AND AWARDS OF MERIT.

Auricula Fred Knighton (C. Turner).—An Alpine variety, with perfect golden paste. The colour is almost black, becoming lighter towards the edges (award of merit).

Lithospermum tinctorum (J. T. Bennett Poë).—A plant attaining to a height of about 10 inches, and producing pale blue flowers (award of merit).

Odontoglossum crispum heliotropium (R. B. White).—The varietal name of this crispum will convey an exact idea of the ground colour of the sepals and petals of the flower. The spots are chocolate brown (first-class certificate).

Primula Trailii (G. F. Wilson).—The flowers of this rare *Primula* are borne on footstalks about 9 inches in length. The colour is white (award of merit).

Rhododendron superbissimum (J. Veitch & Sons, Ltd.).—This is a hybrid, of which the parentage is not known for certain. The flowers are white, and occasionally very faintly suffused with rose. It has a delicious fragrance (first-class certificate).

Tropæolum Mrs. Sanderson (Mrs. Sanderson).—A dwarf, blackish crimson, free blooming form of splendid shape. The flowers are delicately perfumed (award of merit).

SCIENTIFIC COMMITTEE, APRIL 13TH.—Present: Dr. M. T. Masters (in the chair); Mr. McLachlan, Rev. W. Wilks, and Rev. G. Henslow, Hon. Sec.

Mushrooms Raised from Spores.—With reference to this subject, the following communication was received from Dr. D. H. Scott:—"Mr. Massee, of Kew, has referred me to what seems to be a thoroughly successful solution of the problem, how to raise Mushrooms from spores. Two French authors, Costantin and Matrachot, have raised five varieties true from spores, carrying on their cultures in sterilised food solutions, and subsequently on sterilised manure. The whole development is said to take from six to seven months."—"Comptes Rendus," vols. 117 and 118, 1893-4.)

Wireworms, Cure for.—With reference to this, discussed at the last meeting, Dr. Masters remarked that Mustard as powder, or dug in green, had proved to be effective in destroying this pest.

Daffodil with Frilled Corona.—Dr. Masters exhibited a blossom having this peculiarity, which occurs also on *Cyclamens*, *Primroses*, and the var. of *Chrysanthemum Mrs. Alpheus Hardy*. The structure of the fibro-vascular cords is peculiar in the Daffodil in having its elements reversed in position from those of the perianth itself. It was received from Mr. Dick of the firm of Messrs. Cooper, Taber & Co.

Anemone fulgens.—He also showed specimens of this flower from the Riviera, and also the Greek form with rounded sepals. Several of the former were becoming double just as is the case in South of France. Dr. Masters observed that the wild *Anemone*, *A. nemorosa*, had become double in his garden after some years' growth. Mr. Henslow added that the same had occurred with him; specimens originally single, received ten years ago from woods in Wiltshire, were now semi-double.

Larvæ of Bibio.—Mr. McLachlan observed that an error occurred in the statement about propagating soil containing the larvæ of daddy-longlegs, in the report of the meeting on March 9th. It should have been that of a species of *Bibio*.

Tulip Leaves Diseased.—Mr. Thos. Wannock of Polegate, Sussex, sent specimens of leaves showing discolouration. They were forwarded to Kew for examination.

Cineraria cruentus.—Mr. Herrin of Dropmore sent specimens of the original form of this plant exhibiting different shades of colour as well as a cross between it and the garden form. The latter was of a deep crimson tint.

Daffodils synanthic.—Rev. C. W. Dod sent two specimens, each consisting of two flowers, of which the stalks were fused for the entire length from base to flower; they were the var. *Empress*. He observes that in one case "the union was by a superficial membrane only; but in the other the combination was complete, the joint scape being hollow at the base, without any visible joining."

Earths.—Mr. Wilks brought specimens of this umbellifer, which is common in the woods and hedges and open hills about Croydon, the tubers being much eaten by children in that neighbourhood. He remarked that two, of the ages two and ten, had lately died, apparently poisoned by eating the leaves of some wild plant, but its nature could not be discovered.



BAMBOO CANES AND EARWIGS.

AS Bamboo canes are so much in request for training Chrysanthemums, I wish to draw attention to an evil in relation to their use that came under my notice, as the experience may prove useful to others. We grew about 300 Chrysanthemums for large blooms, and after the buds were taken we were much troubled by earwigs. We tried traps of every description to no purpose, and the ravages kept growing worse, even after the plants were housed. On going in with a light about 10.30 P.M., October 23rd, I chanced to see an earwig just vanishing into the hollow end of a Bamboo cane; the next day every cane was unloosed, and the occupants dislodged by a sharp tap on the floor; it was then we found what a splendid retreat the canes had afforded for the enemy. We succeeded in killing a small army of earwigs, and needless to say were troubled no more that season. I recommend all growers who use Bamboo canes for Chrysanthemums to cut the tops at a joint, or otherwise to plug them with wood or cement if they wish to save the blooms from the ravages of these troublesome pests.—J. C., Lancashire.

PUTNEY AND WANDSWORTH CHRYSANTHEMUM SOCIETY.

WE are informed that by way of celebrating the sixtieth year of Her Majesty's reign the tradesmen of Putney and Wandsworth will this year offer a silver cup, value 25 guineas, to be called the Putney and Wandsworth Tradesmen's Commemoration Challenge Cup, also handsome money prizes for cut blooms, open to all, at the annual show to be held in November.

HIGHGATE CHRYSANTHEMUM SOCIETY.

THE annual report and balance-sheet, together with the schedule of the next Show of the Highgate and District Chrysanthemum Society, has just reached us. The Committee's report is a gratifying one as showing the satisfactory condition of the Society, and proving the increased popularity of the annual Show. The 1896 exhibition brought so many exhibits that the Northfield Hall did not provide a sufficiency of space, and the overflow had to be relegated to a tent. We trust this year's display, which is fixed for Thursday and Friday, November 4th and 5th, will be equally as successful both floriculturally and financially. There are eighty classes scheduled, including many in which special prizes are very generously offered by ladies and gentlemen resident in the neighbourhood. The Secretary is Mr. W. E. Boyce, 20, Holmesdale Road, Highgate, N.

HULL CHRYSANTHEMUM SOCIETY.

THE motto of the Hull and East Riding Chrysanthemum Society has ever been "Onward," and during 1896 the Society as well as the several years since its inception still showed signs of progress. In the report that was read at the annual meeting occurs the following paragraph:—"The Committee heartily congratulate the members of the Society on the result of the last year's working. Not only has there been an addition to the roll of membership, and consequently an increase in the amount of subscriptions, but the public have manifested a much greater interest in the Society's proceedings. This latter fact is evidenced by the greatly increased attendance at the last exhibition held by the Society on the 11th and 12th November last; in fact, so great was the demand for admission on the second day of the show that, at one time, it was found necessary to close the doors until the congested state of the room had been somewhat relieved." Could anything more satisfactory than this be wished—except a larger building? Never have officials worked harder than those of Hull, where the whole scheme of arrangement is well nigh perfect. They have sought for success and they have found it, and it is more than probable that if present efforts are maintained

they will keep it. The Honorary Secretaries are Messrs. Edward Harland and Jas. Dixon, Manor Street, Hull, who will provide full particulars of the show to be held in November.

SOUTH SHIELDS CHRYSANTHEMUM SOCIETY.

WHEN the annual meeting of the South Shields and Northern Counties Chrysanthemum Society was held Ald. T. G. Mabane, President, occupied the chair. Mr. Bernard Cowan (Hon. Secretary) read the annual report, which stated that the balance in hand had been increased from 15s. 5d. to £26 5s. 9d., which might be considered as highly satisfactory. From the annual meeting held on the 22nd September, 1895, till November 25th, 1896, the Committee collected in subscriptions the handsome sum of £139 6s. 6d. This was gratifying as showing that the work of the Committee was appreciated in trying to hold successful exhibitions in the town. The last exhibition was scarcely so large as the previous one, but the high-class merits of the exhibits amply compensated for that deficiency. The Chairman observed that the report was most satisfactory. Last year they seemed to get low down, but they had fortunately been able to bring the Society up again. As our readers will probably be aware, the first show of the Society was held in 1882; and for the success that has been achieved since that time much credit is undoubtedly due to Mr. Bernard Cowan, who is an occasional contributor to our columns.

SHEFFIELD CHRYSANTHEMUM SOCIETY.

AT the monthly meeting held in the Society's rooms on the 14th inst., the second of three papers on the cultivation of the Chrysanthemum was read by Mr. Chas. Scott. The former paper commenced with the cuttings and treatment required up to the present time. The second portion, which was very clear and concise, fully explained the writer's treatment, dealt with the time for stopping the various sections of the group. He also gave instructions in watering, potting, the soil most suitable to use, and other essentials. The remaining portion of his cultural instructions will be given later in the season, when the series will have dealt with the annual life of the plant from the cutting to the exhibition flower in November, when the Society's shows are held. A large number of the members were present, and greatly appreciated the information given. A discussion followed, and a vote of thanks to the essayist brought the subject to a close. The exhibits were *Spiræas*, and a good number of fine plants were shown. In the professional section Mr. T. Dixon was first, Mr. Thos. Morton second, and Mr. Chas. Scott third. Amateurs, Mr. H. H. Welford first, and Mr. W. Donaldson second. Mr. John J. Newsham occupied the chair, and received a vote of thanks for his services.

CINERARIAS AT HOME.

AS so much seems to have been written lately on the culture of Cinerarias, it may perhaps interest your readers to know something of the manner of growth in their native haunts. During a prolonged stay in the Canary Islands I took particular note of these plants, and came to this conclusion—they are undoubted rock plants. I never once saw the tall *Cineraria cruenta* in the Island of Teneriffe. This species is undeniably the original parent of the greenhouse varieties, and the flowers, though of course not the size of our huge modern inventions, are by no means small.

In the Island of Grand Canary they grew in abundance upon the hills, but even on the mountains their tall showy flower heads were always to be discerned on the summit of cliffs, or on the raised banks on each side of the steep country lanes. In this last position, among the rough hedges of Prickly Pear and *Cytisus*, they flourished amazingly, growing to the height of 3 feet or more. The flowers varied greatly in colour; a pure white was to be found, but was far less common than those splashed or edged with blue, mauve, or purplish pink, or of selfs of various vivid shades of purplish crimson. Though the roots were generally shaded and protected by tall rough grass and herbs, the heads were always in full sunshine. I noticed only one curious exception, where many hundreds of these plants were growing on the face of a perfectly perpendicular cliff. So straight and rocky was it, that it was quite destitute of other plant life; but growing all down the precipitous lava rock were the Cinerarias, and though stunted and dwarfed to the height of a few inches, they appeared nevertheless green and healthy. These were in deep shadow at midday, but during the spring at least little trickles of water ceaselessly crept down the face of the cliff and kept the roots moist, for no roots could have penetrated into that iron-hard rock, while its surface was too steep and unbroken for any nourishing soil to lodge on it. I may add that this district is very wet during the winter and early spring months—their flowering season.

Though I never came across *Cineraria cruenta* in Teneriffe, in one region I found a variety of *Cineraria* infinitely more charming and refined. This only grew on steep rocky cliffs or banks of broken lava, and in the south and warmest side of the island. It was never more than 6 or 8 inches in height, and few flowers crowned the stem; its leaves, unlike those of its cousin of the Grand Canary, were not coarse and weedy looking, and its fixed colour was a soft and pleasing shade of pink; and though far from uncommon in the neighbourhood, I hardly ever saw it elsewhere. Unfortunately I made no note of its correct botanical name, though enlightened by an enthusiastic plant hunter, who declared it to be an exceedingly rare species, but I can find no mention of it in "Nicholson's Dictionary."—NOTA BENE.



"JOURNAL OF HORTICULTURE" EDITORIAL DEPARTMENT.—
From the present date, and until further notice, it is particularly requested that all letters and parcels intended for the Editor, also all communications for insertion in the "JOURNAL OF HORTICULTURE," be addressed to 8, Rose Hill Road, Wandsworth, London, S.W. N.B.—Business letters and advertisements must be addressed to the City Office.

— WEATHER IN LONDON.—During the latter part of the week ending on the 24th the winds were very cold, and were occasionally accompanied by driving rain. Sunday was bright but rather cold, but Monday was warm and summer-like. There was a heavy mist on Tuesday morning, which was maintained in a lesser degree the whole of the day, which was rather close and muggy, culminating in a heavy thunderstorm. Rain fell in torrents, the earlier drops being of enormous size. Wednesday opened very close and wet, becoming finer after midday.

— NATIONAL AURICULA SOCIETY.—The northern show of this Society will be held on Saturday next in the Free Library, Middleton, near Manchester. The usual classes are scheduled, and we trust the exhibition will be a success.

— TULIP SHOW.—Owing to the late cold weather having kept back the flowers, the Show of the National Tulip Society, which had been announced to take place in the Botanic Gardens, Regent's Park, on May 5th and 6th, has been postponed to the 12th and 13th.

— BERLIN.—The great exhibition to celebrate the seventy-fifth anniversary of the Horticultural Society of Prussia will be held from April 28th to May 9th. It promises, we are informed, to be one of the greatest shows of the year, and visitors to the Hamburg Show—which opens on the 1st of May—should extend their journey to Berlin. Roses, floral arrangements, forced vegetables, as well as garden projects, will be represented, and a very beautiful display is anticipated.

— MAGNOLIA SOULANGEANA.—A large plant, 12 feet high and 12 feet through of this beautiful Magnolia may now (April 19th) be seen in full flower in the Azalea garden at Kew. Of hybrid origin, it owes its parentage to *M. conspicua* crossed with *M. obovata*. In habit and colour of flowers it is intermediate between the two, for whilst it has the height of *M. conspicua* it has the more slender habit of its other parent. The flowers are produced with extraordinary freedom, the plant each year being covered with blossoms, which continue to expand for several weeks; in fact, at almost any time during summer a few flowers are to be found. They are large, and when fully expanded measure 7 inches across. The inside of the petals is white, the outside a light shade of purple. Flowering two or three weeks later than *M. conspicua* it is not so likely to be injured by frost. A warm position should be given, as cold cutting winds soon turn the edges of the petals brown.—W. D.

— THE LATE DR. HOGG.—The last portrait of Dr. Hogg, which appeared in the *Journal of Horticulture* on page 233, March 18th, was taken in the photographic department of that gigantic and varied supply organisation, the Army and Navy Stores, Victoria Street, Westminster. The character of the portrait impressed the heads of the department, and it was thereupon enlarged to practically life size for exhibiting in the Stores' collection as an example of high and effective artistic work. Mr. Henry J. Pearson of Beeston, member of Council of the Royal Horticultural Society, and an attached friend of the deceased gentleman, paying a casual visit to the Stores, happened to pass through the department in which the portrait was displayed. His quick eye detected it, and with prompt Pearsonian decision he secured it for presentation to the Royal Horticultural Society, and it will shortly occupy a position, with other worthies, in the Council room of the Society. It is a magnificent representation, in carbon, a splendid example of photographic art, a true and striking likeness, practically imperishable. It is somewhat remarkable that this, the only portrait of its kind, should have been discovered so unexpectedly by Mr. Pearson, whose father was one of the oldest and most esteemed of the Doctor's personal friends.

— THE LATE W. G. HEAD FUND.—This has now been finally closed, and the balance, after payment of medical, funeral, and other accounts, has been handed to the widow.

— SCHIZOCODON SOLDANELLOIDES.—My friend Mr. Wolley Dod, at page 339, suggests that *Schizocodon soldanelloides* would be likely to succeed in my garden at Wisley. I am happy to say that through the kindness of a gardening friend a plant is already growing there alongside of *Shortia galacifolia* and *Galax aphylla*, and appears to be thriving.—GEORGE F. WILSON.

— EARLY TOMATOES.—I felt much interested in a paragraph in last week's *Journal of Horticulture* (page 338) describing the Tomatoes grown at Mrs. Rylands' establishment, Isle of Wight, wherein your correspondent "S. H." says, "The fruit was well shaped and highly coloured." Will he give us a little more information through the Journal, and say when the seed was sown to have them ripe now, or whether the plants were from cuttings, and at what temperature they had been grown?—G. R. FEERLESS.

— TRENTHAM SHOW.—For eight years there has been a splendid show held under the auspices of the Trentham and Hanford Horticultural Society, and on July 22nd in Trentham Gardens there will be a ninth. Prizes amounting to a total of £400 are offered in the 103 classes scheduled. The principal class is for a group of miscellaneous plants, in or out of bloom, arranged for effect, occupying space not exceeding 300 square feet, and in this the prizes are £20, £18, £13, and £9, with the addition of a silver cup value 10 guineas. Roses and Carnations are encouraged by generous prizes, while fruit and vegetables are by no means forgotten. The Secretaries are Messrs. L. T. Alford, Hanford, and J. P. Jones, Hanford.

— PYRUS FLORIBUNDA.—Of the many species and varieties of *Pyrus* which are cultivated solely for their decorative value, this Japanese species is certainly one of the best. It flowers about the end of April or early in May, the rosy red flowers being produced in great abundance on spurs or young wood all over the plant. The blooms are followed by a large quantity of small yellow fruits. The habit of the plant is more that of a dense bush than a small tree with somewhat pendent branches. Several varieties of this species are in cultivation, noticeably *P. floribunda* var. *atrosanguinea*, with flowers much darker than those of the type, and *P. floribunda* var. *fl.-pl.* with semi-double flowers, both being desirable plants. Given some good soil to begin with, and a fair quantity of room, this plant gives little or no trouble, and may be counted on to produce a glorious display of flowers at the time previously mentioned.—W. D.

— SALE OF BOTANICAL BOOKS.—Messrs. Sotheby, Wilkinson and Hodge recently sold the library of the late Mr. F. C. S. Roper, F.L.S., which consisted chiefly of valuable works on botany and other branches of natural history. The more important of the botanical books were:—Cooke's "Illustrations of British Fungi," eight volumes, £17 5s.; "The Grete Herbal," printed at Southwark by P. Trenewell 1526, a sound copy, £39; Saccardo's "Sylloge Fungorum," £27; "Journal of Botany," from 1863 to 1896, £21; Sowerby's "English Botany," 1790-1863, with the Rev. J. M. Berkeley's appendix volume on British Algae, £36; a set of the same work, third edition, 1863-92, £15 10s.; "Bryologia Europaea," a work on Mosses by Bruch, Schimper, and Gümber, 1836-64, £18 5s.; a set of the Ray Society's publications, from the commencement in 1845 to 1893, was sold for £28. The total sum realised for the 668 lots, says a contemporary, was £1308 15s.

— GRAND YORKSHIRE GALA.—The schedule of the thirty-ninth annual Show of the Grand Yorkshire Gala Floral and Musical Exhibition has come to hand from the excellent Secretary, Mr. C. W. Simmons. This Show has come to be regarded as one of the finest in the country, and the Committee is ever desirous of adding fresh features or improving old in order to insure a maintenance of such a reputation. This year several hundred pounds are offered in prize money in the ninety-five classes specified in the schedule. In the first-class scheduled £58 is credited for a group of miscellaneous plants, in or out of bloom, arranged for effect, and occupying a space not exceeding 300 square feet; while a total of £42 is offered for ten stove and greenhouse plants. A commemorative class, to be called the Victoria prize, for a group of Orchids in bloom, with prizes of £20, £15, and £10, should attract strong competition. In addition to these £40 are offered for a table of ripe fruits, with generous prizes in the many other classes. Full particulars and schedules may be had from Mr. C. W. Simmons, Harker's Hotel, York.

— BIRMINGHAM AMATEUR GARDENERS' ASSOCIATION.—The fourth annual report of this Society shows a satisfactory state of affairs. Several exhibitions have been held during the past year, which have proved very successful, sufficiently so to warrant the Committee in giving equally as many in 1897. The balance-sheet shows a creditable sum on the right, which it is hoped will be increased in the future. The Hon. Secretary is Mr. W. B. Griffin, Wychbury, Alcester Road, Moseley, who will give all needful information.

— TREATMENT OF APPLE SCAB.—The series of experiments made at the Delaware Agricultural Station last season shows that with three applications of Bordeaux mixture the yield of first grade fruit was increased, says an American contemporary, fivefold over that of trees not sprayed. Two varieties of Apples were sprayed for the second season with Bordeaux mixture. The results show (1) that three applications made before blooming, after the bloom had dropped and when the fruit was the size of peas, gave as good results as when an additional spraying was made two weeks later; (2) that spraying increased the yield from three to thirteen baskets per tree; (3) that the amount of first-class perfectly smooth fruit was increased from 18 to 89 per cent.

— BERBERIS STENOPHYLLA.—Of the many species and varieties of Berberis known to cultivators this is certainly one of the best. It possesses a habit peculiarly its own, and when mature it is often from 8 to 10 feet in height by the same or more in diameter. The branches are thin, pendent, and covered with narrow dark green leaves three-quarters of an inch in length. The flowers are orange in colour, about a quarter of an inch across, and thickly produced along the whole length of the previous year's growth, and on short spurs of the old wood. The leaves being evergreen make it a welcome addition during winter to the shrubbery. Cuttings can be rooted readily if put into a cold frame in autumn in sandy soil and kept close for the remainder of the year. Plants $2\frac{1}{2}$ to 3 feet high can be grown in two years from cuttings, and in this stage are useful for beds. As a specimen plant for the lawn this shrub has few equals, as in addition to its free flowering qualities it is sweetly scented, and the habit of the plant is all that can be desired.—W. D.

— GUERNSEY GROWERS' ASSOCIATION.—The Year Book of this amalgamation of Channel Island Growers, which has for its object "Mutual help and protection," reaches us from the Hon. Secretary, Mr. Andrew Marshall. It is a comparatively large publication, having 128 pages enclosed in paper covers. The bulk is taken up by the advertisements, of which the Guernseyites appear to know the value; but there are besides several admirably written articles from practical men. For example, Mr. A. Collette discourses on "Manures," while hardy spring flowers, modern dairy farming, grading and packing Guernsey produce are ably dealt with. Tables are also given of freight charges by the Great Western and South-Western Railway Companies to London, and several of the provincial markets. There is in addition a table of the exports of packages of fruits, flowers, and vegetables, which have increased from 138,508 in 1883 to 1,403,945 in 1896, or an increase of over $1\frac{1}{4}$ million packages in fourteen years. This looks like real business. The price of the Year Book is 1s, and it may be procured from Mr. A. Marshall, St. Julian's.

— FORSYTHIAS.—If a list of the six best early flowering hardy shrubs were asked for, the Forsythias would find a place. Of easy culture and suitable for growing in almost any soil or position, they are deservedly popular. Although several specific names are found in some catalogues all can be sunk into two species and one variety. These are *F. suspensa* and *F. viridissima*, Chinese species, and a hybrid between the two known as *F. intermedia*. For variety of purposes and elegance of habit *F. suspensa* is certainly the best. Whether grown as a trailing plant to cover fences or arbours, as an odd plant in a mixed collection, or as a mass on the open lawn, it is equally effective. If the plant can be allowed to ramble over a Holly or other evergreen, the bright yellow flowers produce a most pleasing effect. After flowering it is a good plan when grown in beds, to cut all the growth back to a few eyes, long strong flowering wood is then produced. The flowers of this usually begin to open about the end of February. *F. viridissima* forms a bush usually 4 or 5 feet high, it flowers very freely, and is about a fortnight later than *F. suspensa*; the habit is stiffer. The name of *F. intermedia* exactly describes the last of the three plants, as in habit it is intermediate between its parents. It is not so well known as the other two, but is well worth growing largely. Like the others this has yellow flowers.—K. R. K.

— WAKEFIELD PAXTON SOCIETY.—From time to time we have published brief paragraphs relative to the doings of this admirable Society. From these references readers will have gathered how broad is the range covered by the essays read at the weekly meetings, though the subjects never go entirely beyond the kingdom of gardening. We have now before us the twentieth annual report, from which ample testimony of the utility and prosperity of the Society may readily be gathered. Membership reaches the handsome total of 285, and fifty-one meetings have been held during the past year, at which there was an average attendance of fifty-four. The library, consisting of almost 500 volumes, is very greatly appreciated by the members.

— SHORTENING BACK OR PRUNING HARDY FRUIT.—About this time last year I cut back some of the leading top shoots of Marie Louise, Beurrié d'Amanlis, and Doyenné du Comice Pears against a wall in my garden. I did so with the intention of diverting the sap from this top growth to the fruit buds underneath. Whether my action had anything to do with it or not—I am anxious to learn—most of the fruit buds fell off. Would some of your experienced readers say whether spring pruning just now would be likely to have such a result generally on outdoor fruit, Nectarines, and Apricots included?—W. J. MURPHY, *Clonmel*.

— PONTEDERIA CRASSIPES.—This plant, known also as the Water Hyacinth, has been naturalised in some of the rivers of the Gulf States of America, and has increased so rapidly that it covers the surface of the water for great distances. In the St. John's River, Florida, and in some of the canals about New Orleans it is difficult for steamers to work their way through this raft of vegetation, and when they do the plants close in behind the boat and occupy the surface completely as before. The obstruction to navigation has become so serious that an appropriation of 10,000 dollars has been made by the Senate of the United States to enable the Secretary of War to study means of freeing water courses from the plant.—("Garden and Forest.")

— "FAMILIAR WILD FLOWERS"—Many of our readers will know and appreciate the excellent work published some time ago by Messrs. Cassell & Co. The present edition, by the same competent author, F. E. Hulme, F.L.S., is different from its predecessor inasmuch as the price is only 6d. per part, of which the work will be complete in twenty-one. It will comprise 200 full page coloured plates, from which it will be a comparatively simple matter to name several of the many wild flowers that beautify our hedgerows, brighten our woods, and adorn our fields. The text accompanying the illustrations is written in that pleasant style which makes technical matter readable, and even attractive. Everyone interested in wild flowers should procure this book, of which the first part was published at the end of February.

— CHESTER SHOW.—On July 28th and 29th the City of Chester will be *en fête* for the second annual exhibition. There are in the schedule now before us upwards of 150 classes, divided in the following sections:—Open to all; nurserymen only; amateurs and cottagers. The value of the prizes varies very largely both in the divisions and the classes, but an excellent display is practically a certainty. The sum of £55 is offered in the open class for a group of plants in or out of bloom, arranged for effect in a space of not more than 300 square feet, and this should bring strong competition. For a decorative display of ripe fruit 40 guineas are divided between first, second, third, and fourth, while for vegetables the three prizewinners have to be content with £10 in the proportions of £5, £3, and £2. The Secretary, from whom all necessary information and schedules may be obtained, is Major Walker-Jones, 6, Grosvenor Chambers, Chester.

— AMERICAN BOTANICAL LABORATORY.—Professor D. T. MacDougal writes to "Science" that the project for establishing a botanical laboratory in the American tropics has made such progress that a commission has been organised for the selection of a site for the proposed laboratory and for ascertaining how far the co-operation of American and British botanists can be enlisted in the scheme. The commission will select a location conveniently placed with reference to towns or settlements and in easy connection with a marine sub-station, and yet near the presence of a body of undisturbed tropical vegetation. The American members of the commission are Professor Douglas Campbell, of Stanford University; Professor J. M. Coulter, University of Chicago; Professor W. G. Farlow, Harvard University; Professor D. T. MacDougal, University of Minnesota. The Committee will be ready to make an informal report to the American Association at Detroit, and the British Association at Toronto, at their meetings in August.—("Garden and Forest.")

— **ANTHOLYZA ÆTHIOPICA.**—This is a showy bulbous plant, common, says a writer in a transatlantic contemporary, in the gardens of Southern California, and it blooms freely during the winter months. It belongs to the Iris family, and produces a spike of flowers with foliage like that of *Gladiolus*. It is a native of South Africa, and is commonly known in gardens by the name *Watsonia*, a nearly related genus. The spike of flowers is generally over 4 feet high, with as many as thirty flowers of a dull brick colour or Chinese red, the prominent anthers and markings in the divisions of the corolla of a deep maroon. The flower is more than 2 inches long, and nearly an inch across.

— **DOUBLE DAISIES.**—Although we obtain these freely from seed yet is the product rarely satisfying, as sowing to secure doubles we like to have the flowers as fully so as possible. So far from producing good bedding effects in the spring the Giant White and the rich King of Crimsons have proved to be the very best. I do not overlook Mr. Cannell's very fine white The Bride, but include it amongst the Giant Whites. I saw the other day a very pretty soft delicate pink flowered double that I much admired, but there were very few plants of it. It is the best of that hue I have seen. Some years ago there was a large variety of Daisies in commerce, but many of these, including the pretty *aucubefolia*, seem to have died out. As hardy carpeting or clamping flowering plants in the spring double Daisies deserve wider culture.—A. K.

— **THE GOLDEN-TIPPED STONECROP.**—This is one of the very hardiest of plants, as indeed all the Stonecrops are; but it is more, for in the late winter and spring it is of all the family the most effective. I grew it many years ago. When recently over in Middlesex I came across a huge patch of it, every tip of the mossy growth being creamy white, and presenting a very striking feature in the nursery. For vases or rockwork, where in conjunction with similar hardy plants it can grow untouched, this *Sedum* is at home. Still it can be got into good sized clumps by dibbling out pieces 10 inches apart in the spring. After the variegation is over, and by the autumn, these pieces will have developed into clumps several inches across; then lifted with a spade, and placed on loose soil and gently pressed in, they furnish very acceptable life and colour in late winter and spring.—D.

— **LEEDS FLOWER SHOW.**—Headingley Athletic Grounds bid fair to be *en fête* on July 7th, 8th, and 9th, on the occasion of the Leeds annual flower show and gala. There are so many excellent gardeners around Leeds, and, indeed, all over Yorkshire, that a magnificent show should reward the Committee for its enterprise in offering such handsome prizes as it has done in several of the six dozen classes scheduled, some of which are open and others restricted. The sum of £36 is offered in an open class for a group of plants arranged for effect, while half that amount goes to a group for amateurs residing within seven miles of Leeds. Six stove and greenhouse plants take £9 10s., and half a dozen Orchids in flower £10. Then there are Rose classes both for cut blooms and plants in pots, while fruits are also generously remembered. Growers who would like to compete should write for all particulars to Mr. W. B. Pindar, Middleton, Leeds.

— **CURRENTS AND PATRIOTISM.**—Rather a strange conjunction this, one might be tempted to say, but that the one affects the other to-day must be admitted. In Greece the Currant crop is one of great importance, and the Greeks, fired with patriotism, are to a man in arms against the Turk and in favour of the Cretan. Admitting this, it naturally follows that the growers of Currants, and the men who prepare them for market, as well as those who see to their sale, have had to give up fruit culture and take to the field of war. "Pity 'tis, 'tis true;" the Currant crop has to be left to itself—to be matured, sold, and sent away to, amongst other places, the United Kingdom. This means, that unless gentle peace quickly returns the year's crop will be valueless, and the gallant little country a loser—a loser where it can least afford to lose—and English matrons will greatly miss the universal favourite, the juvenile consumers of puddings will by this remember the year of grace 1897. True, all Currants are not grown in Greece, nor do all puddings contain Currants, but Greek Currants, like Currant puddings, are universal favourites, and the loss will be felt by an extensive, if juvenile, army of consumers. The attention of buyers is being drawn to the possibilities of the Greco-Turkish embroglio by circulars emanating from the larger dealers in foreign and colonial fruits, fresh and dry, and it is well, we think, to make a note here of the state of things now existing in Greece as possibly affecting the supply here, and price, of our humble but excellent friend, the Greek Currant.—("Gardeners' Chronicle.")

— **NATIONAL VIOLA SOCIETY.**—The annual Show of this Society will, as was the case last year, be held in the Royal Botanic Society's Garden, Regent's Park, and the date fixed is Saturday, July 17th. There are open and amateurs' classes to the number of twenty-five, while special prizes are offered in three classes beyond. Gold, silver, and bronze medals are offered for a collection of *Violas* as well as for a collection of Pansies, but with one exception all the remainder are money prizes. The Society is doing good work in arousing and increasing the interest in these very beautiful flowers, and it is to be hoped that the Show will be an unqualified success. The Hon. Secretary is Mr. A. J. Rowberry, The Crescent, South Woodford, Essex.

— **IRISH POTATO CROP.**—The total produce of the Irish Potato crop in 1896 was 2,701,000 tons, as compared with 3,472,015 in 1895. The yield per acre in the two years was 3.8 and 4.9 tons respectively. The average crop in the years 1886-95 was 2,744,963 tons, and the average yield in these years 3.6 tons. The Champion still continues to form by far the largest proportion of the Irish Potato crop, but the quantity, as compared with other kinds, continues to show a continued tendency to decrease, which seemed to set in after 1893. This variety in 1896 formed 75 per cent. of the total crop, against an average during the ten years 1884-93 of 79.3 per cent. The Champion was first introduced in quantity into Ireland after the failure of the Potato crop in 1879. The average price for Potatoes in Ireland, says a contemporary, was 2s. 1½d., or the lowest since 1891.

— **THE YELLOW ROOT (XANTHORRHIZA APIIFOLIA)**—Although perhaps of more botanical than horticultural interest, this little shrub is worthy of mention, especially when (as this season) it is in flower by the middle of March. Its nearest allies among hardy shrubs are the Clematis and the Moutan Pæony, a relationship of which its general aspect gives but little indication. It is a deciduous plant, and only grows 2 feet to 3 feet high. Its leaves are pinnate, and the flowers, which appear before the leaves at the end of each branch in erect compound racemes, are small, but numerous, each one a quarter of an inch in diameter, and of a dull, lurid purple. The species (which in itself constitutes a genus) is a native of the South-eastern United States, and has been in cultivation 120 years. The popular name of Yellow Root refers to the colour of its thick creeping roots, which in bygone times furnished the Red Indians of North America with a yellow dye. The plant has also some medicinal value as a tonic.—("Garden.")

— **KALOSANTHES CULTURE.**—The *Kalosantes* is a most useful sweet-scented summer-blooming plant. It may be grown into large specimens for exhibition, or in 48 or 32-size pots for the decoration of the conservatory. The cuttings should be taken now and inserted singly in small 60-pots; place them in an intermediate temperature, when they will soon root. Transfer them into larger pots, employing a compost of two parts turfy loam, one of peat, and one of leaf soil, with a good sprinkling of silver sand to keep the soil open. As the season advances place them in a cold frame or pit, and close early to encourage free growth. Stop them twice during the season to make them bushy. In the autumn place them in a light airy house and gradually withhold water, which will cause them to form flower buds. If extra large plants are required do not let them bloom, but pinch the points out and shift into larger pots. Whilst the flower buds are opening ventilate freely, which will improve the colour. Some growers place their exhibition plants in the open air whilst the flowers are opening; but they are protected from wind and wet, and shaded from bright sun.—GARDENER.

— **QUEENSLAND.**—In these days, when so many men of all classes, tired of the strife and strain of commercial life, are turning naturally for relief to the land and its quieter pursuits, we hear in this connection too much of England's expensive and overcrowded acres and too little of the millions of cheap, rich, sparsely settled lands of our colonies. In the matter of fruit-growing, for instance, Queensland offers particularly strong inducements to the small capitalist-cultivator. The soil produces readily, on the coast, every tropical fruit, and on the high table-lands every product that is grown in the temperate zones. For these, as has been said, there are good and growing local markets, while facilities for export to the United Kingdom are ever on the increase. Amongst the fruits that may be profitably raised the Banana takes a foremost place. This is a fruit which crops plentifully and soon, grows nowhere in the world better than in Northern Queensland, and the land needs little preparation for it. The prospects of Queensland as a fruit-growing country are, in fact, exceedingly bright, and good openings for fruit-growers with energy and a little capital are to be found there.



LYCASTE SKINNERI.

FROM time to time records of the successful culture of this handsome Orchid, occasionally accompanied by illustrations, have appeared in the pages of the *Journal of Horticulture*. We now present another one (fig. 75), of which the photograph was sent by Mr. H. Martin, gardener to Lord Leigh, Stoneleigh Abbey, Kenilworth. That the specimen is a splendid one will be seen by a glance at the illustration, but the following brief particulars sent with the photograph will probably enhance the interest. The plant is growing most luxuriantly in a 24-sized pot, and carried when at its best twenty-five fully expanded flowers. We are indebted to Mr. Martin for kindly sending the picture, and trust that he will shortly be able to send particulars as to the treatment to which the plant has been subjected.

NOTES ON LÆLIAS.

THE plants in this genus do not differ much from the nearly related Cattleyas in botanical structure, the chief distinction being that they possess eight pollen masses to each flower, while the latter have four only. They are not so numerous as Cattleyas, but the variation in them is very considerable. Some, like *L. Perrini*, *L. purpurata*, and others, are very much like the labiata section of Cattleya in habit and inflorescence; others are of small stature, and produce many-flowered racemes, such as *L. anceps* and *L. autumnalis*, while again there is a section of the genus with somewhat stem-like pseudo-bulbs, as *L. cinnabarina* or *L. harpophylla*.

Obviously, then, a collective mode of treatment will not do for them, and each species must, to a certain extent, be considered separately. In *L. cinnabarina* we have one of the most beautiful examples of an orange-scarlet Orchid, the long many-flowered racemes having a most exquisite appearance grouped with other and more quietly tinted kinds. It grows about a foot in height, the pseudo-bulb being one-leaved, the racemes appearing at the apex of these. To grow it well it should have the lightest position in the Cattleya house, and be potted or basketed in a rough open compost, consisting of peat fibre and sphagnum moss in equal proportion.

The drainage must come in for especial attention, and a fairly good layer of material may be allowed provided plenty of rough crocks and charcoal are mixed with it. A smaller habited plant, though not unlike the last-named in habit, is *L. flava*, and this is not by any means as well known as it deserves. On healthy plants the spikes carry five or six flowers to each spike of a bright golden yellow. Its culture consists of growing it somewhat freely during the summer months, and keeping fairly dry until the flower spikes appear. A thin compost suits it best, and it should have an airy, light position.

L. grandis is a pretty plant, but is now almost eclipsed by its well-known variety *L. g. tenebrosa*. The latter is sometimes labelled as a species, and is undoubtedly one of the most beautiful and generally useful Orchids in cultivation, ranking with such superb things as Cattleya Mossiae or *Lælia purpurata*. It delights in plenty of heat and moisture, and the roots being very large and fleshy the compost may be of substantial texture, but made very open and freely drained. Good peat, broken in large rough lumps, with only about a third part of sphagnum, will do it well, and the roots must never be dried summer or winter.

A peculiarity of *L. grandis tenebrosa* is that sometimes it blooms upon the young wood in autumn like Cattleya labiata, but usually it rests in sheath during the winter, and pushes up in spring and early summer. It varies very much both in size and colour, but the usual tints are purplish brown upon the outer segments, the lip purple and rose. *L. harpophylla* is another richly tinted kind, not unlike *L. cinnabarina*. When healthy it is easily managed and free in growth, doing well in the Cattleya or Mexican house. The pots need not be large, nor should a great thickness of compost be employed. It is very apt to be attacked by the soft white scale insect, and this must be rigorously kept under if the best results are to be attained.

Where there is room for large specimens to fully develop themselves *L. superbiens* is a very fine and noble plant. It has large, erect, fusiform pseudo-bulbs, each carrying a pair of long leathery green leaves from between which the immense panicles of flowers issue. The stems grow to a height of about 5 feet on

medium-sized plants, and each carries from a dozen to twenty blooms. The ground colour of these is a rich rosy lilac, the lip being much deeper than the sepals and petals, and lined with yellow and purple. As noted above, a large house is necessary for this, and the plants being vigorous rooters should be grown in large well-drained pots, the compost consisting of lumps of peat as large as a hen's egg, plenty of rough nodules of charcoal and crocks, and a little chopped sphagnum. *L. superbiens* is a rather straggling plant if allowed its own way, but by notching the rhizomes occasionally to make them produce back breaks they will become much better furnished.

All those mentioned are now flowering, but the most gorgeously beautiful of all is not open as yet. I need hardly say I refer to *L. purpurata*, which in its best forms ranks second to none. The flowers are too well known to need description, and the species is free in growth and easy to cultivate. The earliest plants to flower generally have time to form a new pseudo-bulb and sheath before winter, but if the later ones can be induced to rest until early spring they then come away with surprising vigour and flower freely. By no means endeavour to force them to do so; better by far let them have their own way, but if they seem inclined to rest keep them as quiet as possible in a slightly drier atmosphere until the turn of the new year.—H. R. R.

PLANT CONSTITUENTS: SODA.

OF the twelve primary constituents found in plants—namely, water (hydrogen and oxygen), carbon, nitrogen, phosphoric acid, potash, lime, iron oxide, magnesia, sulphuric acid, silica, soda, and chlorine, ten only are considered by chemists to be indispensable for the production of the majority of farm and garden crops, the last two—soda and chlorine—not being required. Nevertheless both enter into the composition of plants grown for their useful produce, such as grasses and cereals, Clover and legumes, fruits and vegetables, and unquestionably serve some useful purpose in the economy of the several plants.

Sodium, Na, 23, is a soft yellowish metal, first isolated by Sir Humphrey Davy in 1807. It does not occur in nature in the elementary condition, but its compounds are widely distributed through the crust of the earth and in the waters of the ocean. Sodium burns with a brilliant orange-yellow flame, yielding sodium oxide, or soda, Na_2O , 62, which, united to water, produces the hydroxide or caustic soda, NaOH , 40, and this forms soap, commonly hard, with the various fats.

All soils contain compounds of the metal sodium which have been derived from the disintegration of silicates or that have been carried down in the rains. The amount varies considerably in different soils and situations. Dr. Fream* gives that of a loam soil from Kent (a Hop soil near Sittingbourne) at 0.01, of a sandy soil from Staffordshire (near Rugeley), and a clay soil from Cambridgeshire (near Cambridge) at 0.06, and of a chalk soil from Norfolk (near King's Lynn) at 0.11 per cent. The older analyses give much larger percentages of soda in the soil, and those of plants exhibit a striking coincidence in the greater amounts found in them formerly than at the present time. Some uncertainty exists as to the older data, and in the recent the sodium is apt to be under-estimated or overlooked when mixed with much potassium, while, on the other hand, sodium, if present to the extent of a per cent. or more, is very liable to be estimated too high.

Thus, analyses become stumbling-blocks over which cultivators trip in the application of scientific research to the needs of the field and garden, especially as regards sodium and potassium. Indeed, the commonly prevalent belief that the labours of the chemist in his laboratory when he makes an analysis of a given soil will supply absolute figures as to the fertility of that sample for general plant growth is delusive. Of course, it is contended that if a chemist can analyse a plant and find out what it removes from the soil, why not an analysis of the soil furnish all the information needed as to what fertilising constituents should be applied? This proposition would seem to afford an easy method of arriving at a definite conclusion as to the needs of a soil and its adaptability to a given plant or crop. The idea that the requirements of the soil in the way of plant foods as ascertained by an analysis of it and the plant to be grown is simplicity itself, but there are modifying factors to be considered.

Plant foods may be—1, soluble in water—ready for use by plants; 2, soluble in very weak acids—this and 1 is called the available plant food; and 3, insoluble either in water or weak acids, and of no use to plants until changed into an available form. The chemist can separate these forms with considerable accuracy when analysing a fertiliser, and is able to compare the commercial value from the results secured. In the case of soils the chemist can tell—1, the total amount of plant food present; 2, how much is soluble of it with water; but, 3, cannot decide how much plant food is ready for use and how much is not. The discriminating power of the rootlets of plants are beside the chemist's

* "Elements of Agriculture," pages 20 and 21.

calculations, yet much in this direction has been ascertained by Prof. Bernard Dyer ("On the Analytical Determination of Probably Available Mineral Plant Food in Soils." Messrs. Harrison & Sons, St. Martin's Lane, London.)

A soil analysis, therefore, is not, as at first sight appears, a definite determination of the needs of that sample for chemical fertilisers. When analysed some soils are shown to contain enough plant food for many crops, yet the yield on such soils has been doubled by the supplying of a few pounds per rod or cwts. per acre of chemicals. Thus, though the total quantity of plant food present was large, the amount of available

available elements in the soil, for the increase is greater than could have been caused by the added chemicals alone. The impression is that chemicals act as stimulants, but the term is inapplicable to plants, for nitrates, sulphates and phosphates supply food; hence it is a matter of feeding, and a substantial dietary of nitrogen, phosphoric acid and potash, with proper conditions of heat and moisture, enable plants to make extra growth and cause them to make use of otherwise unavailable plant food in the soil.

There is another side to this question—that of the action of chemicals on the soil constituents and on the plant. As regards sodium or soda,

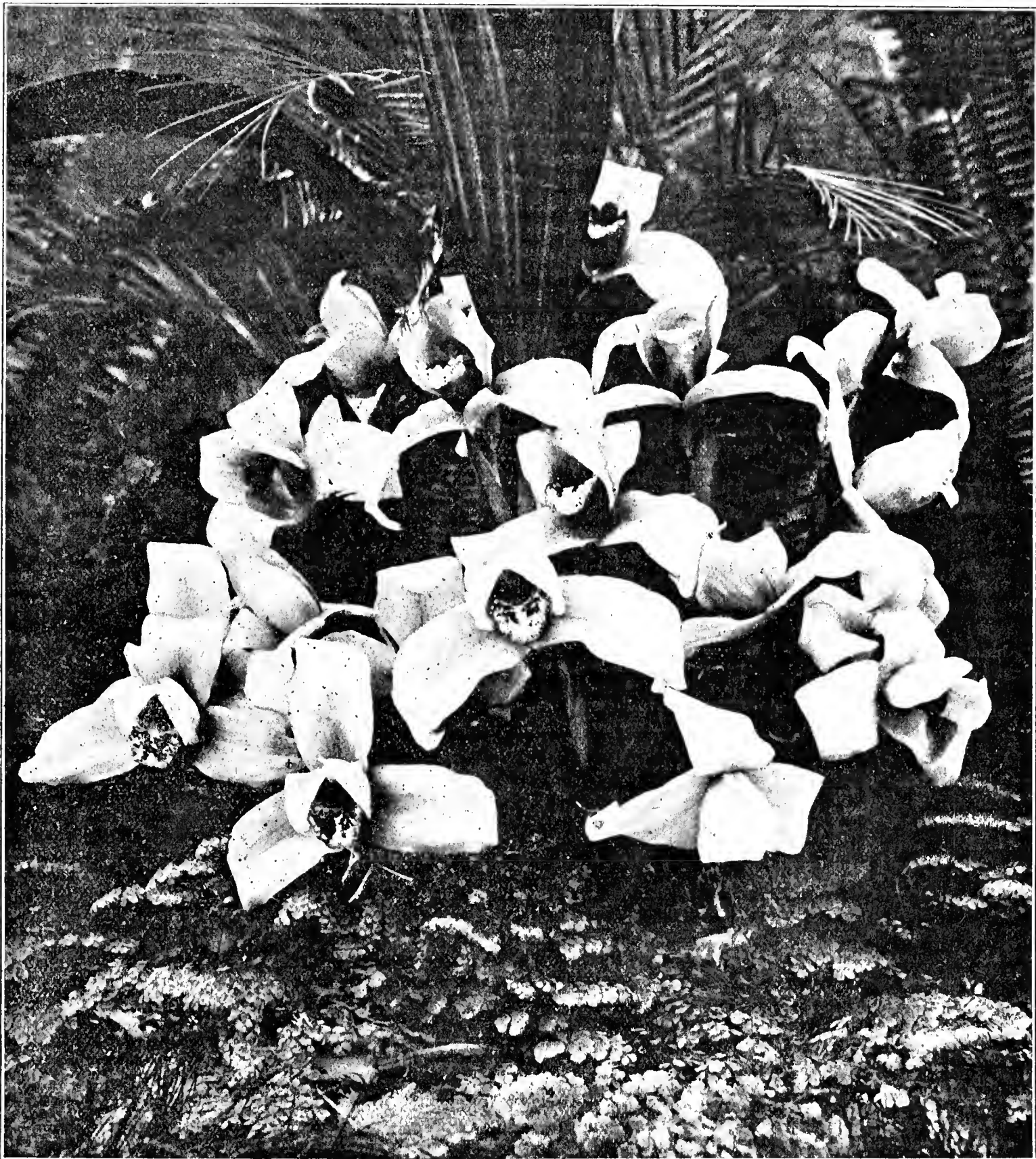


FIG. 75—LYCASTE SKINNERI.

nutriment was shown to be practically small. If the soil be deficient in any one element an analysis will show it; but when it indicates an abundance of plant food there is still question as to its available fertility.

Turfy loam, with additions of horse droppings, decayed manure, or leaf soil, even heavily manured fields or gardens, will show, on analysis, enough plant food to grow a prodigious crop, yet the tardy growth of plants in such soils demonstrates that but a small proportion is available; while, on the other hand, if a small amount of readily available plant food is supplied it enables the plants to make use of some of the partially

to which we will now confine our remarks, we have it both in the soil and plant as nitrate, sulphate, chloride, and carbonate. These are all commercial substances, and owe their value, from a chemist's point of view, for manurial purposes to the element with which the sodium is combined. Nitrate of soda is, therefore, the most important from this standpoint as supplying nitrogen to the plant. What is the soda to the soil? Does it accumulate therein to the prejudice of crops from consecutive applications? and, if so, what is the substance to apply to afford the needful relief? Here we have the sodium of the chemist, which is not a plant food. But the chemist is prepared for contingencies, and in cases of prejudicial soil alkalinity from abuse of nitrate of soda

corrects it by applying a dressing of sulphate of lime, CaSO_4 , 136, and thus converts the sodium from positive poison into absolutely beneficial sulphate. This is as far as we need carry this matter for practical purposes, and goes to show that sodium is, like other minerals, useful or otherwise according to its availability as food. But is it a food of plants or a needful element of soils for preparing matter, which, absorbed by plants and utilised in the building up of their structures, serves useful purpose?

Sodium carbonate, or carbonate of soda, Na_2CO_3 , 106, is usually present in the ashes of plants. According to Prof. E. von Wolff, the ash and soda in 1000 parts of the following substances consist of the subjoined average quantities, the first figures representing the ash and the second the soda:—Orchard grass 17.8, 0.8; Red Clover in flower 13.7, 0.3; White Clover in flower 14.3, 1.0; Beets 9.1, 1.5; Carrots 8.2, 1.7; Turnips 6.4, 0.6; Radish 4.9, 1.0; Parsnips 10.0, 0.2; Onion 7.4, 0.2; Jerusalem Artichoke 9.8, 1.0; Potato 9.5, 0.3; Cabbage, outer leaves, 15.6, 1.5; Cabbage, heart, 9.6, 0.8; Cauliflower, heart, 8.0, 0.5; Cucumber, fruit, 5.8, 0.6; Lettuce 8.1, 0.8; Asparagus, sprouts, 5.0, 0.9; Spinach 16.0, 5.7; Mushrooms 10.0, 0.2; Pea seed 23.4, 0.2; Pea straw 43.1, 1.8; Bean (horse) seed 31.0, 0.3; Kidney Bean seed 27.4, 0.4; fruit—Apple 2.2, 0.6; Pear 3.3, 0.3; Cherry 3.9, 0.1; and Grape 8.8, 0.1.

The amount of soda is a variable ingredient of plants, as shown by the proportions in the ash, and, as a rule, the richer the plant is in nitrogen the smaller the amount of soda; but however minute the quantity it is always present in each cell of every plant, and exists partly in the cell-wall, incrusting or embedded in the cellulose, and partly in the plasma or contents of the cell. It is soluble in water, and occurs in the juice or sap. This is true, in general, of the alkali metals, and of the sulphates and chlorides of calcium and magnesium. Silica, the calcium phosphates, and the magnesian compounds are mostly insoluble, and exist in the tissue of the plant in solid form, but these minerals enter the plant in liquid form, and in the matter of liquidation soda plays no insignificant part, especially in the case of silica, which, with lime and magnesia, present the most invulnerable wall to invading fungi. This at least is one reason for the use of soda as a manure.

Carbonate of soda is obtained from common salt by somewhat complicated processes, and is sent into commerce as soda ash, about a quarter of a million tons being annually prepared in this country for use in the industrial arts. It is an impure carbonate, but possibly of equal value for applying to land as washing soda—the sal-soda of America—which is the substance deposited when a solution of soda ash is allowed to crystallise, the crystals containing 63 per cent. of water, which partly escapes when the soda is exposed to the air, leaving a white opaque powder. Washing soda has the formula $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$, and is coming into use as a manure for Brassicas to induce sturdy and hardy growth, such as will insure more of the useful part with resistance of climate vicissitudes and of fungi and insects. Remember this has come from practice and not from science.—G. ABBEY.

(To be concluded.)

TULIPS.

BITTERLY cold east wind was blowing almost fiercely over the bulb ground at Long Ditton, where Messrs. Barr & Sons have such a wonderful collection of everything floral that is hardy. When I looked over them recently it seemed difficult to realise that under such adverse weather conditions beautiful flowers could be found in such profusion; but there were big clumps or masses of early Tulips in most glorious colour and profusion, such colouring, indeed, as would if found on any lawn have made it too garish to look upon, but distributed here and there, amidst bigger masses of now fading Daffodils and unbloomed Irises, seemed to be so acceptable and so lovely. Large as then was the show of early Tulips, I am not sure whether the display of late ones will not be greater.

In any case the collection of these latter at Long Ditton is an immense one, and will well repay a visit to the grounds in a very few days. A little genial weather, warm nights, and bright days should open the flowers rapidly. But whilst these latter Tulips bear close individual inspection, for the markings of the flowers are most beautiful as well as picturesque, the early Tulips are best suited to form brilliant masses, and as the bulk of them have self colours, so does one good flower represent the many. There are not a few beautiful parti-coloured flowers also, but without doubt those which most forcibly catch the eye are of self colours of the entire Tulip family; from the time the early Van Thols come into bloom until the latest fade away there is consecutiveness.

But where it is desired to obtain a fine show at one particular time no doubt those varieties which bloom concurrently are best. Out of the many of the early section I noted as the very best and most effective, as well as fine of flower, were the old white Pottebakker, large and rotund; Princess Marianne, white, flushed rose, the petals long and pointed; Chrysolora and Ophir d'Or, two splendid yellows; scarlet Pottebakker, very brilliant, with orange base, and rather deeper; La Belle Alliance, a very rich, effective Tulip; Proserpine, so well known, is a striking rosy magenta, and still deeper in colour and rather dwarfer is Adeline. A rich crimson colour is found in Dusart, and still richer is the superb red maroon Van der Neer, whilst darker still is Wouwerman. Rather taller and just a day or two later is the striking orange red

Prince of Austria; and finally of the selfs is Couleur Cardinal, rich scarlet purple.

These comprise in my estimation the finest of the self flowers. Some very beautiful bicoloured varieties, however, are charming, and especially so when closely inspected. The famous scarlet and yellow Keizers Kroon is universally grown. Fabiola, striped white and red; Rosamundi, red and white; cerise Gris de Lin, having a broad edging of white; and Cottage Maid are of the best of this section. I have here given a list of eighteen varieties, all of which may be obtained where there is room to plant and variety is desired. The doubles have their admirers, but I am not of them. I rather regard the double Tulip as a very lumpy, ungainly flower. Most certainly the singles are more pleasing in form, and because of the bold breadth of petal presented much the most beautiful. If the doubles want praise they must seek elsewhere for it than from me.

When the late varieties are open few doubles will be in evidence, and, whilst the markings and colourings of the flowers will compel admiration, no lover of the beautiful in floral form will be annoyed by the presence of lumps of petals that are obnoxious. It need hardly be said that apart from bulbs there are myriads of beautiful things in the Long Ditton grounds in the spring to attract attention. Aubrietias in huge clumps on rockwork are particularly effective; indeed, in all directions can be seen something to attract notice. I was much interested in the effective silvery variegation of the *Symphytum Bohemicum*, so useful in spring gardening with the marbled-leaved clumps of *Heuchera Richardsoni*, the Spotted *Pulmonaria*, and similar things, because in an unostentatious way they can be made to play a most useful part in winter and spring bedding.—A. D.

CONFUSION IN CONIFERS.

CUPRESSUS LAWSONIANA AND C. NOOTKATENSIS.

THAT there is a great exterior resemblance between these two species cannot be denied, and in consequence *C. nootkatensis* frequently does duty for *C. lawsoniana*. However much this is for several reasons to be regretted, I have from personal observation found that the mixing up of the two species is of very common occurrence. The differences are, however, markedly characteristic, for if the strong pungent smell of the foliage of *C. nootkatensis* were not sufficient, even in the dark, the more pendulous branches, larger cones with distinctly reflexed scale protuberances, and sulphury yellow catkins should render recognition by no means difficult. It may be well to add that the cones of *C. lawsoniana* are almost smooth, or only with a film-like appendage, and the pollen catkins bright red.

The cones of *C. nootkatensis* have four scales and eleven seeds, those of *C. lawsoniana* seven scales and nineteen seeds; while of the former 112,000 go to the pound weight, as against 105,000 of the other.

Unfortunately, for its value as a forest tree, the stem of *C. nootkatensis* is invariably carrot-shaped—thick at the base with a rapid taper upwards—and this is noticeable everywhere throughout the country.

THUJA ORIENTALIS FALCATA.

The various varieties of the Chinese Arbor Vitæ are in a sad state of confusion—indeed, many are incapable of accurate identification. I have seen three totally distinct forms of the so-called *T. orientalis falcata*, and as these are growing in the same grounds, and not 50 yards apart, and under similar conditions in every way, the chances of mistaken identification in this particular instance are very remote.

The first or normal form is of larger growth than any of the others, of upright but not appressed growth, and with large deep green cones that are twice the size of the species. Second comes a much smaller growing perfectly taper-like shrub, the foliage of a different shade of green, and the cones similar in every respect to the latter; and third, the most distinct and ornamental of any—a neat-habited shrub with yellowish green foliage, that is quite uniform in colour all over the specimen, and with unusually large cones, many of these, being fully an inch long, the sickle-shaped spines being very conspicuous.

So long are the spines in this particular form that they might well be likened to a molar tooth with the fangs intact. This is most noticeable when the cones have attained to full size, but before becoming ripe, for at the latter stage the shrinkage of the spines is very perceptible. This golden form is well worth cultivating, the neat habit and bright tint of both foliage and bark rendering it a very desirable garden shrub.—A. D. WEBSTER, *Boarwood, Herts.*

ANIMALS POISONED BY BROOM.—All parts of the Broom—root, stem, leaf, and flower—are more or less poisonous to animals, owing to their containing two alkaloids, scoparine and sparteine, the latter especially being dangerous. In any case the Broom is not only purgative, but is also very emetic in its effects. The horse and the ass detect more readily than the ruminant animal the sickly odour and the bitter taste of the plant, and are less likely to eat it. But should a horse, ass, or mule have eaten Broom in any more or less considerable quantity, there should be no delay in administering the antidote, which is found in a large dose of coffee, 7 or 8 quarts or so, given warm and weak. The effect of this remedy, says the "Revue Horticole," is not always certain, and it is best to prevent the animals from browsing on Broom, whether it be *Genista scoparia*, *G. juncea*, *G. tinctoria*, or any other species.

THE ONION FLY (PHORBIA CEPETORUM), MEADE.

THE Onion fly causes serious injuries to the Onion crop in some seasons, and it appears to be on the increase in this country. It is also a source of great trouble to the Onion growers in the United States, and in continental countries. Frequently in English market gardens and market garden farms, where Onions are extensively cultivated, large percentages of the plants are quite spoiled by the attacks of this fly. In cottage gardens and allotments the whole of the plants on the small Onion beds of the cultivators are often ruined by successive generations of this insect.

The first indications of the infestation are shown by the longest or first leaves of the Onion plants becoming yellow, and afterwards whitish; if these are pulled they come easily away from the stem, and gradually the other leaves become yellow and decay. The bulb will be found to be small and badly shaped, and having yellowish maggots within its folds, feeding upon it, and eventually causing it to become rotten and useless.

In other cases, the outer or lower leaves of the plants are seen to be lying on the ground, still green, while the leaves remaining upright and green feel soft and flabby.

If infested plants are examined it will be generally noticed that in the case of very young plants they are nearly eaten through, just above the swelling bulbs, by the maggots or larvæ of the fly. In older plants, with large bulbs, maggots of all ages and sizes will be found within the bulbs.

Onion plants that become yellow and show signs of drooping should be examined for maggots just below the surface of the ground.

LIFE HISTORY.

The male and female flies of this species differ slightly. The male is dark grey in colour, with black bristles. The eyes are red and close together. Upon the thorax are four bright brown stripes and four rows of black bristles. The abdomen is ash-coloured, rather narrow, having triangular black spots down it which almost join each other. The legs are pithy.

In colour the female fly closely resembles the male, but the abdomen is dark grey, with the end more pointed than in the male; and the eyes are wide apart.

From six to eight eggs are laid on an Onion plant, upon the leaves and just above the ground. The eggs, which are white, long, and somewhat oval, can be easily seen without a glass. Maggots (larvæ) come from the eggs in from five to seven days, according to the temperature and other conditions, and make burrows down into the root, or bulb, between the sheathing leaves. They feed upon the contents of the cylindrical root which can hardly at this stage be styled a bulb, and move on to other plants. Later on, when the bulbs are larger, they are occupied by many maggots, which feed on them and cause them to become rotten. Sometimes the bulbs will be seen to be swarming with maggots, and the earth round them is also infested. The maggot continues in the larval state for a period varying from thirteen to fifteen days, feeding throughout this period upon the Onion roots or bulbs. It is nearly four lines (one-third of an inch) in length, dull yellowish white, or dirty white, in colour. The head part of its body is sharply pointed, and the head, furnished with a pair of black hooks, can be extended at will; the tail end is cut off obliquely flat, and in the centre there are two brown spiracles or breathing tubes, and on the margin of the flat tail end there are eight teeth or projections.

Before pupation takes place the maggot usually goes into the earth. Sometimes pupation occurs within the Onions. The pupa, or rather the pupa case or puparium, is chestnut brown, oval, not so long as the maggot, and has the same toothlike projections on the caudal end. On opening this puparium the white pupa will be seen with the embryonic wings of the future fly, which appears in from thirteen to sixteen days after pupation.

There are several generations of this insect. The first has been seen as early as the 25th of April in very forward seasons, and flies have been noticed through the autumn and as late as November. Curtis states, however, that he saw them alive in December.

METHODS OF PREVENTION AND REMEDIES.

Spraying Onion plants with offensive compositions is a good way of preventing infestation. Paraffin emulsion is as good a compound as any for this purpose. It may be made by thoroughly mixing together 3 pints of paraffin and $\frac{1}{2}$ lb. of softsoap with 1 gallon of boiling water. Mixing may be done by passing the composition through a hand pump once or twice; 6 gallons of water should be added to dilute it sufficiently, so as not to burn the Onion leaves. When the Onion leaves are young and very tender 7 or 8 gallons should be added. It may be applied on small plots of Onions with a Knapsack machine; on large breadths with a horse distributing machine. The spray should be dense and in the form of mist. This operation should be performed early in the season, when the Onions have established their leaves.

Spraying must be repeated, probably twice or thrice, especially if heavy showers fall after the process.

When Onion plants in a field or garden are noticed to droop and wither all such plants should be taken up and burnt or deeply buried. They must be taken up by means of a little three-pronged fork, or some other handy tool, so that every particle of bulb and leaf is removed.

Wherever it is possible Onions should not be grown again for at least one season on land where this crop has been infested, as the pupæ

remain in the ground during the winter. All pieces of bulbs should be got off infested land, as pupæ occasionally remain in the bulbs. If it is necessary to take two successive crops of Onions on infested land the ground should be dug very deeply, two spits deep, and well limed or gas-limed.

Sprinkling the young Onions with soot has been adopted with some advantage; but the pungent odour soon evaporates, and it is necessary to give several dressings.

Kainit, broadcasted on land cropped with Onions at the rate of 5 cwt. per acre, has been found to be of great use. The action of kainit as a preventive of some kinds of insect attack in larval form has been often noticed, though it is rather difficult to define the form or nature of its action. In the case of the Onion maggots it would appear that kainit prevents their progress from one Onion to another, either by the shape of its crystals or by some pungent emanation from it. It is not the stimulus that it gives to plants which make them grow away from their enemies, as kainit is not by any means a forcing manure. Kainit should be hoed very lightly in after it has been broadcasted on.

Nitrate of soda, applied at the rate of $1\frac{1}{2}$ to 2 cwt. per acre, should be

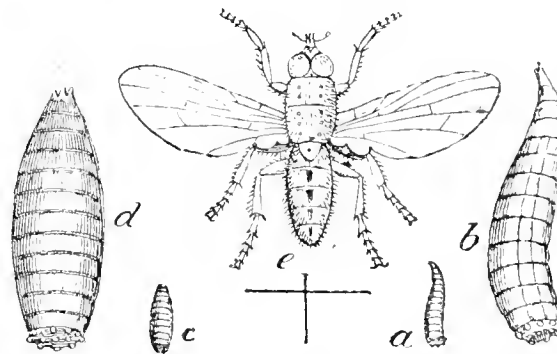


FIG. 76.—a and b, Larva, natural size and magnified; c and d, Pupa, natural size and magnified; e, Fly magnified; lines showing wing expanse and length of body.

put on infested land in order to stimulate the plants and make them grow away from the enemy.

Lime and soot, mixed together in the proportion of 1 bushel of soot to 2 bushels of lime, very finely powdered and broadcasted over the infested plants, and lightly hoed in, has been efficacious in a degree.—(Board of Agriculture Leaflet, No. 31.)

EVOLUTIONARY ESSAYS.

EVOLUTION was once a terrible word to many, and amongst these some of the ablest and best of men who gave thought, all of them perhaps not the most profound, to the subject. Not a few of these, however, in time came to regard evolution as not such an outrageous thesis after all, but as something associated with one of the first laws of Nature—growth, or in other words steady advancement, gradual, imperceptible progress, like the growth of a tree from its seed, but culminating in a change not less marvellous than tangible and indisputable. Let no one, then, be frightened by the once dread word of evolution, because in reality its significance is apparent everywhere in the animal, vegetable, and mineral kingdom.

In "Evolutionary Essays" we merely condense the sub-title, indicating the nature of an American work, of which the chief and formal title is the "Survival of the Unlike," a sort of parody, we may almost venture to say, on another formula not unfamiliar—namely, the "Survival of the Fittest."

The author of this work—which we have had in hand for a considerable time, but which, owing to pressure on space, could not be sooner referred to—is Mr. L. H. Bailey of the Cornell University, Ithaca, New York.* We venture to say that no one knows better than the author of this volume of over 500 pages that the title he has chosen embodies a mere truism. No one knows better than he that variety, or exact unlikeness, meets us everywhere. No two individuals can be said with accuracy to be precisely alike in respect to appearance, habits, and influences; no two men, animals, plants, trees, leaves, or flowers can be said to be absolutely identical. There are divergencies more or less apparent, but all the same existent, though in some instances the microscope may be necessary to reveal them. This being so, it may be conceded that Mr. Bailey has chosen his title wisely, because under it may be written essays on almost every conceivable subject connected with animal and plant life; but it is not everyone to whom it is given to write so lucidly, and it may be said so logically, as the author of this volume before us. The work comprises, as is stated on the title page, a "Collection of Evolutionary Essays Suggested by a Study of Domestic Plants." It seems to be composed of some thirty lectures delivered at more or less wide intervals, and though there is something of interest in most of them it can scarcely be said that complete harmony pervades the whole; indeed, it is hard to exercise the suspicion that an obviously able man could not wholly resist on all occasions the temptation of what is known on "this side" in homely vernacular as padding; yet let it be said that the handbook as a whole is well worth reading.

We have no particular inclination to criticise, adversely or otherwise, the theories of the author or his methods of treating the multitudinous

* The Macmillan Company, Bedford Street, Covent Garden, London.

subjects which he brings under review; and besides, the nature of the work will be more fairly represented by a few citations, with or without a few words of comment as the matter may or may not suggest. One thing may be said—namely, that the author goes as far as he can to the beginning of things, and endeavours to follow them to the end as guided by his own intellectual light or the light of others that may have illumined his path. Commencing with the nature and divergence of the plant and the animal, the author says:—

"It is self-evident that the development of life upon our planet has taken place along two divergent lines. These lines evidently originated at a common point. The common life-plasma was probably at first more animal-like than plant-like. The stage in which this life-plasma first began to assume plant-like functions is closely and possibly exactly preserved to us in that great class of organisms which are known as mycetozoa when studied by zoologists, and as myxomycetes when studied by botanists. At one stage of their existence these organisms are amoeba-like—that is, animal-like, but at another stage they are sporiferous, or plant-like. The initial divergencies in organisms were no doubt concerned chiefly in the methods of appropriating food, the animal-like organisms apprehending their food at a more or less definite point, and the plant-like organisms absorbing food throughout the greater or even the entire part of their periphery. . . . If we turn to plants, we find the rotate or peripheral arrangement of parts emphasised in all the higher ranges of forms. The most marked bilateralism in the plant world is amongst the bacteria, desmids, and the like, in which locomotion is markedly developed; and these are also amongst the lowest plant types. But plants soon become attached to the earth, or, as Cope terms them, they are 'earth parasites.' They therefore found it to their advantage to reach out in every direction from their support in search of food. Whilst the centrifugal arrangement has strongly tended to disappear in the animal creation, it has tended with equal strength to persist and to augment itself in the plant creation. . . . The vegetable world does not exhibit, as a whole, any backward step, any loss of character once gained, nor any stationary or retarded periods." Is that so?

Then Mr. Bailey goes on to say, and not many persons will presumably controvert his opinion, that—"This phrase—the survival of the unlike—expresses no new truth, but I hope that it may present the whole truth of vicarious or non-designed evolution in a new light. It defines the fittest to be the unlike. . . . I am so fully convinced that, in the plant creation, a new character is useful to the species because it is unlike its kin, that the study of differences between individuals has come to be, for me, the one absorbing and controlling thought in the contemplation of the progress of life. These differences arise as a result of every impinging force—soil, weather, climate, food, training, conflict with fellows, the strain and stress of wind and wave, and insect visitors—as a complex resultant of many antecedent external forces, the effects of crossing, and also as the result of the accumulated force of mere growth; they are indefinite, non-designed, an expression of all the various influences to which the passive vegetable organism is or has been exposed. . . . Thereby there is a constant tendency for new and divergent lines to strike off, and these lines, as they become accented, develop into what we, for convenience sake, have called species. There are, therefore, as many species as there are unlike conditions in physical and environmental nature, and in proportion as the conditions are unlike and local are the species well defined. But to Nature, perfect adaptation is the end; she knows nothing, *per se*, as species or as fixed types. Species were created by John Ray, not by the Lord; they were named by Linnaeus, not by Adam."

Most persons will agree with the following observations:—"A good gardener is one who grows good plants, and good plants are very unlike poor plants. They are unlike because the gardener's love for them has made them so. The plants were all alike in November; in January the good gardener's plants are strong and clean, with large, dense leaves, a thick stem, and an abundance of perfect flowers. The poor gardener's plants are small and mean, with curled leaves, a thin, hard stem, and a few imperfect flowers. You will not believe now that the two lots were all from the same seed pod three months ago. The good gardener likes to save his own seeds, or to make his own cuttings; and next year his plants will be still more unlike his neighbour's. The neighbour tries this seed and that, reads this bulletin and that, but all avails nothing, simply because he does not grow good plants. He does not care for them tenderly, as a fond mother cares for a child. The good gardener knows that the temperature of the water and the air, the currents in the atmosphere, the texture of the soil, and all the little amenities and comforts which plants so much enjoy, are just the factors which make his plants successful; and a good crop of anything, whether Wheat or Beans or Apples, is simply a variation. And do these unlikenesses survive? Yes, verily! . . . The cultivated flora has come up with man, and if it has departed immensely from its wild prototypes, so has man. The greater part of all this has been unconscious and unintended on man's part, but it is none the less real."

The author has much to say on bud variations and sports, indeed the chapter in which the subject is discussed is perhaps one of the most interesting in the book. A few citations will best display its character. "Bud variations," or those 'sports' which now and then appear on certain limbs or parts of plants, are nearly always readily propagated by cuttings. These variations cannot be attributed to sex, in the ordinary

and legitimate application of the Weismannian hypothesis. Whilst these 'sports' are well known to horticulturists they are generally considered to be rare, but nothing can be farther from the truth. As a matter of fact, every branch of a tree is different from every other branch, and when the difference is sufficient to attract attention, or to have commercial value, it is propagated and called a 'sport.' . . . In other words, plants multiply both with and without sex. Potentially, every node and internode of the plant is an individual, for it possesses the power, when removed and properly cared for, of expanding into what we call a plant, and of perfecting flowers and seeds, and of multiplying its kind. . . . The nurseryman knows that branches differ amongst themselves, for he instructs his budders to cut buds only from the topmost shoots of the nursery rows, in order that he may grow straight, vigorous trees; and every farmer's boy is told that he should never select scions from the centre or lower part of a tree. Every skilful horticulturist will tell you that the character of the orchard is determined very largely by the judgment of the propagator in selecting scions." And it is further intimated that scions taken from vigorous young trees which have not fruited (as in nursery rows) may be expected to give trees which will be later in bearing than others which have been propagated from fruiting trees.

The influence of climate as changing the shapes of Apples is specifically noted. "The similarity of the same varieties of Apples grown in the Eastern and Western States" being said to "end with their names," for "the Apples themselves are very unlike. They have been modified by climate until they are larger, longer, and more conical, frequently marked by prominent ridges at the apex, less firm in flesh, and often somewhat inferior in quality. To all intents and purposes many of them are distinct varieties from their parents in the East, and they afford as distinct and unequivocal cases of evolutionary modification as the most hypercritical can wish to see. The Newtown Pippin affords one of the best instances of rapid modification of any American fruit. It has always been a local and capacious Apple in New York State, where it originated, yet in the Piedmont region of Virginia it is the leading Apple, known as the Albemarle Pippin; in the far North-west it is again the leading Apple over a great territory, and in New South Wales, under the name of Five-Crowned Pippin, it is still again a dominant variety. Yet in each of these four geographical regions the variety attains a specific character which it does not possess in the others."

The question of dessert Apples receives prominent attention. In America Apples are graded on a decimal scale in three distinct categories—dessert, cooking, and market. Each variety is also rated, in size and colour. The standard of excellence, as determined by a great fruitist, Mr. Lyon, is high, and only the very choicest varieties reach figures 9 and 10. Long lists are given of these and other fruits, their relative values being represented in figures, with 10 as a maximum. The result is that "we find thirty-eight varieties of Apples graded 9 and 10 for dessert, of which only three are rated small, while seven are large, and two are very large. Those rated as medium to small are two, and those medium to large are three. Of these thirty-eight entries, therefore, six, or less than one-sixth, would be called small Apples, and thirteen, or over one-third, are large Apples, the remaining ones being classed as medium or intermediate." The author goes on to say, "It is evident, from our discussion, that quality and other characters of cultivated fruits appear independently of each other—that there is no true correlation between these characters. There is a general increase in all characters as amelioration progresses, at least in all characters which are sought by horticulturists; and this fact must ever remain the chief inspiration to man in his efforts to ameliorate plants."

There is much more in the book worthy of attention, though no doubt some chaff amongst the grain; still, the "Survival of the Unlike" is entertaining, instructive, and suggestive. It is a readable hook, which is no small merit, and as a "handbook" it is the lightest in weight of any we have handled that is composed of nearly 500 pages. The price is not stated, but we do not suppose it is prohibitive to the great bulk of gardeners and amateurs in the Old Country, in which there are happily a few "dollars" left; we should like to know there are many, as the reward for honest labour in the domain of horticulture.

FEEDING ROSES.—Mr. Robert Simpson, writing to "The American Florist," says that it is a mistake to feed Roses under glass or other plants of this class abundantly in autumn or early winter, while the plants are small and soft and while the soil is still rich in plant food, with comparatively few roots to use it. But in the spring, when the soil is full of roots, the sun powerful and the growth rapid, unless nutriment is furnished just as fast as it can be consumed by the plants, small shoots and smaller flowers will be the result. Of course, we cannot take fresh manure from the stable into the greenhouse and use it as a mulch. It should have been heaped up last summer, turned over once or twice in the autumn, and stored before cold weather in a shed or other dry place where it can be reached and handled at any time. In this season of growth the surface of the benches should be sprinkled over with a dusting of finely ground bone or wood ashes, or, better still, with a mixture of both, and this should be covered with a mulch an inch thick of the well-decayed manure and soil mixed in equal quantities. Liquid manure may be omitted for a week after the mulch is spread, otherwise it should be attended to faithfully and regularly, giving it frequently in a very diluted form.

HIBBERTIA PERFOLIATA.

THIS interesting plant is now flowering in most gardens where it is grown, although unfortunately there are exceptions to the rule, inasmuch as *Hibbertia perfoliata* (fig. 77) is not generally cultivated. The *Hypericum*-like flowers are bright yellow, and being freely produced render the plant very attractive. Several species of *Hibbertias* are grown in conservatories, usually trained to pillars or the roof, but *H. perfoliata* is more compact in habit, and, like the smaller-flowered *H. Reedi*, is better suited for culture in pots. The flowers are not of long duration, but so many are produced, and in such close succession, that the plant continues ornamental for a considerable time.

APRIL CHARACTERISTICS.

THE end of April is peculiarly the period of Nature's "smiles and tears." Of late the latter have greatly predominated, and occasionally they were of an exacting description; heavy showers, mingled with hail, and sometimes with snow. It was a dangerous time for blossoming trees, many of which, notwithstanding the recent visitations of frost, are already in flower. Among these, in my own garden, is the beautifully foliaged *Prunus Pissardi*, the blossoms of which form a striking contrast to the crimson-purple leaves. This is, assuredly, one of the most highly ornamental of Eastern trees.

The Early Rivers Plum and the prolific *Victoria* are the earliest in bloom; among contemporaneous Cherries are *Black Eagle*, *May Duke*, and *Werder's Early Black*. Only a few days have intervened between the blossoming period of any of these. The Pear trees are usually considerably later, but several varieties, such as *Pitmaston Duchess*, *Early Crawford*, *Rivers' Fertility*, and *Doyenné du Comice* (which Mr. Rivers once assured me was the finest Pear in cultivation) are already preparing to burst into bloom. In the South of England they are considerably earlier; which, considering the weather we have recently experienced, is a fact their cultivators may have reason to deplore.

Very picturesque at present are the blossoms of the rosy tinted Almond and those of the double flowering Peach, both of which trees are highly ornamental. Ere long the Apple trees will be in full beauty, and there is every prospect of abundant bloom. Irish Peach is already exhibiting its roseate buds, and such varieties as *Duchess of Oldenburg*, *Stirling Castle*, *Lady Sudeley*, and *Beauty of Bath* (a great acquisition) are already far advanced. But the blossom of the Apple is only embryonic in April; it is the precious possession and crowning glory of May. Its most fascinating contemporary is the flower of the Hawthorn, which is yet in its infancy, though plainly discernible amid the enfolding and protecting leaves. By many a wayside in this beautiful sea-girt parish, and in many a shadowy glen the snow white blossom of the Blackthorn presents a picture which only can be witnessed at this season of the year.

One of the most charming of April flowers is the *Auricula*. Though I have not made it a special study like Mr. Harry Turner or the Rev. H. H. D'Ombrian, I can understand their admiration for this vernal gem. Lily of the Valley is developing very rapidly now that the rains have become softer and more congenial, and ere long its intensely fragrant flowers will be found nestling in all their gentle loveliness among its luminous leaves.

Roses at present have such brilliant foliage that no lover of Nature can fail to admire their varied hues. Especially radiant are such varieties as *Madame Pierre Cochet*, *Margaret Dickson*, *Mrs. W. J. Grant*, *Niphetos*, *Homère*, and *Perle des Jardins*; very graceful are also the *Austrian*, *Persian*, and *Penzance Briars*, which are for the most part of a pendulous habit, and have a strong fascination in the fragrance of their leaves. Lilies have of late been growing with marvellous rapidity. Many of my candidums, auratums, excelsums, davuricums, and Martagons; also *Lilium Humboldti*, the *Caucasian Szovitzianum*, and the Chinese *Henryi* promise to bloom very early this year. On the other hand, the tender stems of *Lilium longiflorum Takesima* and *L. Harrisii* do not seem to appreciate such weather as we have experienced, and have suffered in many instances from atmospheric visitations. *Lilium Kramerii*, one of the most beautiful and distinctive of Lilies, is, fortunately for itself, only beginning to appear.

The *Narcissi* are at present in splendid bloom; the invincible *Horsefieldi*, which has immortalised the name of its humble originator; *N. Barri* conspicuus, a hybrid of great distinction; *N. ornatus*, *Orange Phoenix*, *Queen of Spain*, and *N. Tazetta*, of which Homer and Sophocles sang so impressively—combining their rich and varied beauties to form intensely artistic effects.—DAVID R. WILLIAMSON.

NARCISSUS TRIANDRUS ALBUS (ANGEL'S TEARS).—A London evening paper, in describing the Daffodils at Long Ditton, observes:—"There is a story attached to the name of the 'Angel's Tears.' Mr. Barr, senior, the 'Daffodil King,' on one of his rambles in Spain discovered the flower, and gave his lad orders to go and dig the bulbs up. The day was hot, and Angel (such was the youth's poetic name) shed copious tears at the idea of digging bulbs in the sun, whereupon Mr. Barr, on sending home the bulbs, alluded to them jestingly as 'Angel's tears,' and the name has adhered to the *Narcissus triandrus albus* from that day forth."

FRUIT PRESERVATION.

AN interesting experiment in the preservation of fruit by means of cold storage has been carried out during the past season by the Technical Education Committee of the Kent County Council at Dartford. The experiment has been personally superintended by two members of the Committee, Messrs. Hesketh and Chambers, whose reports are now issued. They state that the stores were kept at steady temperatures of 30° and 40° until near the end of the year, when it was considered there would be no further utility in prolonging the experiment under the same conditions.

Mr. Hesketh's report thus proceeds:—The fruit loses weight somewhat during the refrigerating process, as is evident by the amount of moisture collected off the brine walls, which amounts to 15 per cent. of the weight of the fruit per week. This moisture is absorbed from the fruits by the air during its natural circulation in the chamber, and



FIG. 77.—HIBBERTIA PERFOLIATA.

deposited on the colder surface of the brine walls from which it is drained away. The air is thus kept in a dry condition. An object in future experiments will be to reduce this desiccation of the fruit, but still maintain the dry condition of the air, which is so essential in avoiding mildew.

It is, of course, a matter of common knowledge that fruit, especially of the harder kinds, can be kept back for a time from ripening by means of refrigeration, such knowledge being taken advantage of for bringing fruit from Australia and the Cape to England; but one main object in this experiment was to show the cost of fruit preservation on a small scale, such as our fruit growers might find of service. A careful log has, therefore, been kept of the working expenses, and this shows that the total cost of engine power (gas at 3s. 6d. per 1000 cubic feet being used in a gas engine) and all stores amounted to 8s. 9d. per day. This does not include anything for labour, as only the occasional attention of a labourer otherwise employed is required. The cost of working by an oil engine would be approximately the same.

The refrigerating machine, which is the smallest size practicable, was capable of dealing with a much larger chamber, its average hours of working per day being only three and a half. If an average of twelve hours a day for the working of the machine is taken, it could then maintain a store 24 feet by 24 feet by 8 feet high, which would be capable of storing some 2000 bushels of Apples. The cost of working the machine on such a chamber, based on the experience gained in the recent experiment, would be 2s. 2d. per day. Of course, larger installations, worked with larger machines, would cost much less to work in proportion to the quantity of fruit kept. It is proposed to make experiments during the coming summer on the soft fruits as they come in season.

In that portion of the experimental work managed by Mr. Chambers 4½ bushels of fruit were stored in the chambers for 101 days, and 35½ bushels for fifty-six days. Mr. Chambers states that some of the summer Apples left in the store until the close of the experiment were found to be sound, but were not so good in flavour, and were somewhat soft. On the other hand the winter Apples were of as good flavour as when put in, and were quite as hard and sound.—("Times.")

THE YOUNG GARDENERS' DOMAIN.

THE CULTIVATION OF BOUVARDIAS.

THESE beautiful plants are grown from cuttings taken from the old plants, which after flowering have been slightly rested, cut back, and started again. A mixture of fibrous loam, leaf soil, and sand is suitable for the cuttings, of which five may be inserted in a 60-size pot, watered and plunged in a close frame where there is a bottom heat of about 75° to 80°. When the cuttings are rooted they should be placed singly in "thumbs," using the same compost as before, placing the young plants as near the glass as possible in a moist temperature ranging from 60° to 65°, and keeping them well syringed.

As soon as the roots take possession of the new soil the plants must be topped at the second joint, repeating the process until they attain the bushy habit desired. Before the small plants are root-bound transfer them to 48's, taking care to disturb the roots as little as possible in removing the old crocks. The compost may be the same as before, with a little peat and spent Mushroom bed material added, passing this through a half-inch sieve. When the new soil is fairly occupied with roots the plants may be arranged on ashes in a cool frame.

During hot sunny days they require to be shaded with tiffany, also kept well syringed, and afforded a free circulation of air. When the 5-inch pots are filled with roots weak liquid manure will be of great assistance to the plants. Red spider and green fly are very partial to Bouvardias, but if the plants are frequently syringed the former will not obtain a hold, and the latter is easily prevented by occasional fumigation.—ELVEDEN.

[If this young man learns to write as well as his father can work there will not be many to surpass him.]

DIPLADENIAS.

THESE are among the showiest of all stove-house plants. When well grown they are very beautiful objects, and whether in the exhibition tent or in the hothouse they are always attractive. To begin with, one must have a good command of heat, as they require a high temperature the whole year round. They are propagated by mossing a shoot or cuttings. By the former method the strongest plants are obtained. Select a strong young shoot about 2 feet in length, bind a little moss round a joint, and as soon as roots can be seen through the moss, which should be kept moist, get a pot split in halves—a 5 or 6-inch one is best—and fit it round the mossed joints; then fill with equal parts of sphagnum and lumps of peat with a little sand. As soon as the pot is full of roots the young plant may be severed from the parent and eventually repotted, shading it for a few days. Cuttings of most varieties emit roots if inserted in a mixture of peat and sand and placed in a propagating pit with a brisk bottom heat.

The best soil I have found for Dipladenias consists of equal parts of good peat and fibrous loam, in pieces about the size of walnuts, with charcoal and sand, adding a little artificial manure for large plants. If the loam is of a heavy nature some half-decayed leaf soil should be used and only half the quantity of loam. The pots should be well drained and the soil made very firm.

After potting the plants are best placed where they receive a little bottom heat, but this is not necessary if the watering is attended to by a careful man. When not growing very little water is needed; at no time do they require a large amount, and it must always be given with judgment. When the pots are filled with roots the plants can be assisted with a little weak tepid liquid manure made of soot and cow manure.

The training of Dipladenias is an important factor in their cultivation. The best method is by small strings connected with the roof of the house, as these can be cut away to clean the house or plants; in fact it is the best method for any climbing stove plant, the young shoots twisting around it far better than wires. As soon as the points of the shoots reach the top of the house a balloon-shaped trellis should be fitted on the pot, then carefully wind the shoots about twice round it, taking the upper part to the roof again.

If the plants are required for exhibition the flower spikes should be held upright by means of a few tints in the roof, and tied with raffia. Then a few days before the exhibition they can be put on the trellis, and

the flowers will be in an upright position. After the exhibition they can be taken off the trellis and trained to the roof again, when they will continue flowering much longer than if left on the trellis; in fact they can be had in flower for five months of the year, which is a great recommendation.

One of the reasons why Dipladenias are not more generally grown, is owing to their being subject to the attacks of various insects. Aphids attack the young shoots, and thrips the flowers, but these can be coped with successfully by smoking or vaporising. Their greatest enemies, however, are red spider and mealy bug. For preventing red spider there is nothing better than frequent spraying with soft water on fine days. Instead of the ordinary method of twice a day the plants may be syringed four or five times on hot days. A good prevention or cure for mealy bug is this—to every four gallons of hot soapy water add one wineglassful of petroleum, this, if used according to the directions below, will be found very effective against insect life. Choose a dull day, and clear out any plants there are underneath the Dipladenias, and while one man or boy mixes with a syringe, another can syringe on the plants, wetting all parts, afterwards syringing with clear water. If this is done about once a fortnight through the growing season little harm will be done by insects. Three of the best varieties of Dipladenias for all purposes are Brearleyana, amabilis, and boliviensis.—J. L. G.

["J. L. G." will be glad to know that if his large sheet of paper, on which the whole of this article was written had been cut into four parts, he would have added much to the convenience of the printers.]

CROTONS.

CROTONS are charming foliage plants, admired for their bright colours. They are grown in the form of specimens for exhibition, also for grouping, as well as, in a small state, for table decoration. For large specimens I do not think there are many to excel the varieties Queen Victoria, Warreni, Williamsi, Prince of Orange, Prince of Wales, Johannis, The Countess, Andreanus, and volutus. For table and graceful plants for grouping purposes, I think Chelsoni, angustifolius, Johannis, The Countess, Aigburthensis and Warreni are among the most suitable.

As regards to the cultivation of Crotons. They should have a well-heated house to themselves wherever it can be provided. The pipes should not be overheated, but a good temperature maintained. When the pipes are few in the houses, they have to be too highly heated for the well-being of the plants.

Crotons in their growing season, which is about eight months, require a temperature from 70° to 75° at night, rising to 85° or 90° during the day, with sun heat. During the winter months, 60° at night, rising 5° during the day, will suffice. Crotons should be frequently syringed to prevent the appearance of thrips and red spider, which, if allowed to increase, spoil the foliage and deprive the plants of beauty.

As regards soil, I have seen the following used with the best results: Good fibrous loam, adding one-third each of peat and coarse sand, with a small quantity of Thomson's or Clay's manure. The pots must be clean and well-drained. Crotons require copious supplies of water.—W.

[If this correspondent has kept a copy of his communication he will find how great is the necessity for more care in composition; he must also allow twice the space between the lines. It is a pity that such a good penman, and, we believe, plant grower, should not take more pains in the directions indicated.]

EUPHORBIA JACQUINIEFLORA.

THE Euphorbia is one of the most showy and useful of our winter-flowering plants, which deserves to be more widely cultivated in private establishments where there is a demand for cut flowers. It will stand the dry air of rooms remarkably well, and what is more beautiful for table decorating or for ladies' sprays?

All plants that have been resting should be placed in the stove at once, if not already there, giving them a thorough watering, also keeping them well syringed, when they will soon break. When the growths are from 3 to 4 inches long take them off with a little hard wood, and insert singly in "thumbs," or five cuttings round a 60-size pot. They strike well in a compost of equal parts loam, leaf mould, peat, and sand.

Place them in a propagating frame, with bottom heat of about 80°; shade from bright sun, and do not keep them too moist, or they will damp off. As soon as they are rooted give a little air during the day, and open the frame fully at night, which will prepare the plants to endure the air and sun of the plant stove. When they are well rooted pot singly in well-drained 60's. Stop the plants when they have grown about 6 inches. From three to four shoots will be sufficient for flowering, if long racemes of flowers are desired. Keep the plants close to the glass in the plant stove or intermediate house. When they have filled their pots with roots, and before they are root-bound, transfer them to 54's, using an extra part of loam to the above-named compost. Watering must be carefully attended to at all times.

The plants may be further shifted into 32's—a suitable size to flower them in. See that they are properly crooked, using a compost of two parts loam to one part each of leaf mould, peat, and spent Mushroom bed refuse, with a dash of sand; stand the plants on a moist cool base, and keep the syringe playing freely amongst them. As soon as they begin to form their flowers is the time to commence feeding, liquid manure being preferable to top-dressing. When the flowers are half expanded the plants should be removed to a drier house, say a warm conservatory, as they are liable to damp off in a moist atmosphere. Old plants may be planted against the back wall of a lean-to house, where

they will afford many useful sprays for cutting. It is far better to grow a few plants well than to attempt to grow many more than there is room for, or than can be properly attended to.—GROWER.

[Our correspondent desires to know if he is trespassing on our space. Our reply is, "No." He can, if he take pains with his pen, occupy a portion of it usefully.]



FRUIT FORCING.

Cherry House.—Where the trees were started at the new year and have been brought forward steadily the fruit will have stoned and commenced colouring, and be swelling rapidly for ripening. The temperature may now be raised, but it must not exceed 65° by artificial means and 55° to 60° at night, with a little ventilation, increasing it at 70°. Subject to the leaving of a little air on constantly at the top of the house close at 70°, but the temperature must not be allowed to exceed that degree in the early part of the day without full ventilation. From the commencement of colouring until the trees are cleared of their fruits syringing must cease, or the fruits will crack, but humidity should be maintained in the house by keeping the surface of the border moistened as it becomes dry, or if the trees are in pots—a very desirable method of growing this very acceptable fruit—damping the floor two or three times a day, avoiding, however, a stagnant atmosphere. Aphides, which are apt to settle on the points of the young shoots, must be kept under by vapourisation with nicotine essence, or fumigation with good tobacco paper or rag, as it does not answer to apply an insecticide in powder or liquid form after the fruit commences ripening. The border must not lack moisture, and trees in pots must be properly attended to as required in watering. Place some netting over the ventilators to prevent birds attacking the Cherries. Stop the extending growths of trees in pots at the fifth leaf, and laterals to one joint as made. Trellis-trained trees should have the shoots tied in as they lengthen, and those not required for training in may be stopped at about the fifth leaf.

Cucumbers.—Plants in bearing all the winter will now be showing signs of exhaustion, and would be best removed, cleansing the house, providing fresh soil, and putting out fresh plants without delay. This is far better than renovating old plants, and there is no very material break if care is taken to have strong plants ready for placing out, which come into bearing within a few weeks; indeed, some turn out large plants, and by cropping lightly have no break in the succession, as Cucumbers cut young will keep plump and fresh several days with their heels in saucers of water. Young plants coming into bearing will be the better for removing the male flowers and most of the first fruits, stopping at two or three joints beyond the fruit, removing all weakly and unnecessary growths. Encourage a free root action by adding fresh warmed soil to the hillocks or ridges as the roots protrude, sprinkling a little fertiliser on the newly added soil, such as superphosphate of lime, 3 parts; double sulphate of potash and magnesia, 2 parts; and a mixture of equal parts air-slaked chalk lime and dry soot by measure, using a good handful, 3 or 4 ozs., per square yard. This must always be sprinkled on the freshly added soil, and not applied directly on the roots.

Little fire heat will be required by day in fine weather, shutting off the heat at about 8 A.M., and opening the valves at about 4 P.M., maintaining adequate moisture by damping the paths and other surfaces in the morning and at closing time. Maintain, however, a night temperature of 65°, and 70° to 75° in the day by artificial means. Aphides are sometimes troublesome, and may be subdued by tobacco, either in the form of vapour or smoke, taking care not to give an overdose, having the foliage dry, but the floor well damped, the latter is especially necessary where there is white fly to contend with. Soapy solutions are neither safe nor desirable for use on Cucumber foliage. For this pest and red spider fumes of sulphur are effective. The sulphur must be applied carefully, as an overdose on hot-water pipes at a high temperature is almost as injurious to the plants as are the pests.

Sow seed for raising plants to occupy pits and frames. A fair amount of bottom heat should first be secured by using the less decomposed material from Rhubarb, Seakale, Vine borders, or exhausted hotbeds, which, with about a fourth of fresh material, will afford all the bottom heat now required. The linings of beds made up some little time must be attended to, renewing as required. Maintain the night temperature as near as may be at 65° to 70°, ventilate a little at 75°, and keep through the day at 85° to 90° from sun heat. Close early so as to rise to 90° or more, and protect well at night.

Figs.—*Earliest Trees in Pots.*—The fruits of the very early small varieties are ripe, and the large Pingo de Mel, White Marseilles, and Brown Turkey are nearly so, hence the supply of water at the roots must be diminished, discontinuing syringing, and affording a free circulation of warm air, leaving a little top ventilation at night. Although watering is advised to be lessened during the ripening of the fruit, the soil must be kept moist, and a moderate moisture in the atmosphere secured by an occasional damping, but this will only be necessary in

very bright weather. As soon as the first crop is gathered syringe the trees twice daily, renewing the top-dressing, and watering at the roots with weak liquid manure. If the second crop be very abundant the fruits must be thinned so as not to overtax the trees for early forcing next season.

Early Forced Planted-out Trees.—The fruit is advancing rapidly towards the ripening stage, and must have sufficient nutriment. If necessary give the trees a thorough supply of water or liquid manure, and mulch the border with a little partially decayed, rather lumpy manure. Do not cease syringing until the fruit commences ripening, avoiding then a superfluity of moisture about the house, having a little ventilation at the top constantly, and a free circulation until the fruit is all gathered. Do not gather the fruit until it is thoroughly ripe unless it has to be packed.

Succession Houses.—Attend to stopping the shoots at the fifth joint, and subsequently to one or two; but too many side shoots must not be encouraged, as the fruit and wood require light and air for maturation. Train extensions in their full length, thinning or removing strong growths so as to admit light and air to the fruit. Attend daily to syringing the trees, and supply water as necessary to maintain thorough moisture at the roots. Renew the mulching as necessary and keep it moist, but not always saturated, so as to encourage the roots and keep them at the surface.

Melons.—After the flowers appear the atmosphere should be moderately dry and well ventilated, fertilising the pistillate blossoms when fully expanded, stopping the shoots one joint beyond the fruit. This should be persisted in daily until the number required for the crop are secured on each plant, not allowing one fruit to take the lead, but having them all on as nearly an equal swelling as possible. Do not spare the knife after the fruit has commenced swelling; but keep the principal leaves fully exposed to the light, attending frequently to stopping the laterals. Maintain plenty of moisture where plants are swelling their fruits, syringing the walls as well as the plants about 3 P.M., damping the floors several times in hot weather. Afford water or liquid manure about twice a week, never allowing the foliage to flag. The night temperature should be maintained at 65° to 70°, 70° to 75° by day from fire heat, and 85° to 90° with sun. Ventilate freely, but avoid admitting too much air at a time, so as to reduce the temperature, commencing at 75°, increasing or diminishing it with due regard to external influences.

When the fruit is full sized and advanced for ripening gradually reduce the supply of water at the roots, but not so as to cause the foliage to flag; afford a circulation of warm air, which should be rather dry during the ripening process. Cracked fruits are produced by a close moist atmosphere, and too much water at the roots. If any fruits show a tendency to crack cut the shoots about half way through with a knife a few inches below the fruit, lessen the supply of water, and also atmospheric moisture. Shade only to prevent flagging. If thrips appear fumigate on two or three consecutive evenings, or in the evening of a calm day and early the following morning. For red spider and white fly brush the hot-water pipes with a cream formed of flowers of sulphur and skim milk.

Plants in pits and frames should have the growths regulated and trained, keeping them rather thin. Plants swelling off their fruits should be well earthed, and the laterals pinched and thinned, placing the fruit on pieces of slate. Maintain the necessary top and bottom heat by linings, and cover the lights at night with a double thickness of mats.

THE FLOWER GARDEN.

Hardening Bedding Plants.—In order to make room for the more tender plants no time should be lost in hardening all Zonal Pelargoniums well established in pots or boxes. They must not be too quickly exposed to all weathers, and considering that heavy cold rains and hailstorms are very injurious to them, the best form of protection that can be used, next to old lights, are large wooden shutters. The latter are handy for a variety of purposes, and should be found in most gardens. Make good use of them for warding off cold rains as well as frosts. Avoid overwatering plants when first turned out of houses or pits. Verbenas, Lobelias, Ageratums, and Heliotropes also suffer severely if they are very cold and wet at the roots, more especially when placed in rather deep boxes, and only the strongest of the two former should be placed out of doors as yet, being then well protected. Calceolarias are much hardier, and whether placed singly in 5-inch pots or in boxes, or better still, temporarily bedded out in rich light soil, they will need little protection, but must be kept well supplied with water at the roots.

Propagating.—There is yet time to root a considerable quantity of plants, and when abundance are raised the work of arranging and planting the beds and borders is much simplified. Soft tops of Heliotropes root in a close warm frame, or in a box covered with glass and set in fairly brisk heat, in a few days, as also do Verbenas, Tropæolums, Iresines, Coleuses, and Alternantheras, stocky little plants being got ready by bedding-out time. These late-propagated plants can, if necessary, have the small pots and boxes newly emptied of the hardier or more forward plants, and if kept in gentle heat till well rooted into the fresh soil will eventually bed out surprisingly well. After pits have been cleared of early vegetables or Violets they might be got ready for propagating purposes. In some cases there will be enough heat left in the old hotbed underneath, in others a slight renewal will be necessary. With the aid of short heating material below, raise about 4 inches of fine light soil well up to the glass, and face the latter with sharp sand.

In this dibble short, soft cuttings of *Verbenas*, *Iresines*, *Alternantheras*, and such plants about 3 inches apart each way, give a gentle watering, and keep close till rooted. Shade from bright sunshine, freshen with water occasionally, and cover with mats during the night. When growing freely pinch out the points of the strong growers, and a number of capital plants will soon be fit for transplanting direct to the flower beds. This plan is particularly to be recommended where many thousand plants are required for the beds and borders, and it obviates the use of either boxes or pots.

Bedding Plants from Seeds.—*Ageratums*, *Lobelias*, *Zinnias*, *Asters*, *Stocks*, *Phloxes*, *Gaillardias*, and other plants raised from seed ought not long to be kept thickly together in pans or boxes, starvelings rarely recovering properly; all should therefore be temporarily bedded out in pits and frames (rough or otherwise), and if they do not have time to make much top growth they will form fresh roots, and will transplant all the more readily. French and African *Marigolds* sown thinly now in boxes of light soil and placed in gentle heat will germinate very quickly, and be quite large enough for the beds early in June. *Sunflowers*, notably the miniature forms, may yet be raised thus, these also moving out of seed pans and boxes without experiencing a severe check. *Love-lies-bleeding* moves well out of seed pans, and a back row of this annual is fairly effective in borders. The showy bedding *Nasturtiums* may yet be raised, and are particularly well adapted for poor hot soils. Raise the plants singly in small pots. It is not too late to sow seed of *Ricinus* and Japanese *Maize*, both being noble border plants. Sow the seeds singly in 2½-inch pots, and place in heat to germinate.

Violas.—These are most showy early in the season, but by good culture they can be kept gay throughout most summers. Young plants raised and treated much the same as shrubby *Calceolarias* are the best for summer bedding, though much may be done in the way of dividing old plants. The former must not be allowed to remain in frames or closely packed anywhere, nor should they be permitted to greatly weaken themselves by flowering now. It is not wise to delay finally planting them out till the more tender plants are ready for the beds or borders. The site for them ought to be specially prepared, being early manured and deeply dug, for they are moisture-loving plants, mildewing badly if starved at the roots. Plant out or divide and replace the old plants now, at all events where possible, and this whether they are to edge beds or to form a groundwork for variegated and bronze *Pelargoniums*, *Iresines*, and others. Mulch with either short manure, leaf soil, or spent tan, and pick off all the flower buds as they form. Thus treated they will push strongly from the base of the plants, and a good summer display result.

Dahlias.—Too often extra strong old roots are planted intact, whereas sturdy single stems, with few or no tubers, give much the best results. The former push up numerous growths, which only serve to weaken and smother each other, but the single stems branch freely and flower early and profusely. It pays well to shift rooted cuttings from small into 6-inch pots, fine strong plants being thereby prepared for the borders. Old clumps may with advantage be freely split up when the shoots are about 3 inches long, one or two tubers retained with each shoot being ample. Place these divisions singly into 6-inch pots, and keep them under glass till the fresh soil is well occupied by roots. They will make good stuff by the end of May. Plants obtained by post from a distance are necessarily small, therefore order early and establish them in pots prior to transferring to borders. This will give them a fair chance, and a much earlier display will be obtained. Even those obtained in small pots should be had early and given a shift.

THE KITCHEN GARDEN.

Globe Artichokes.—The heat and drought of 1896 has left its mark on numerous Artichoke plants. So weakly are they starting that many may fail to produce flower heads of a serviceable size. The sucker growths ought to have been well thinned, leaving three to five to each old stool, and a liberal top-dressing of decayed manure, applying this next the roots, given. Now is the time to form fresh plantations, the aim being to have a row or rows of strong young plants to take the place of the older ones as these wear out. Artichokes are gross feeders, and must have a freely enriched deeply dug root run. Detach side growths from the old plants with a knife, if possible with a few young roots attached, and plant in groups of three, a distance of 3 feet separating the groups. Those taken off and rooted in 5-inch pots under glass, planting them out before they become much root-bound, are usually the first to attain to a productive size.

Borecole, Cabbage Broccoli, Savoy.—If seeds of these winter vegetables are sown now the plants will be large enough for putting out by the time ground can be spared for them. It is possible to raise them too early, the plants becoming drawn and spindled before they can be planted. Sow the seeds thinly in the open, rather than in small patches on narrow wall borders. Early raised plants of those named, also Broccoli and Brussels Sprouts, should be picked out before they spoil each other in the seed beds or boxes. They will move best out of a finely divided soil. Prick them out 4 inches apart each way, and shelter from cold winds.

Broccoli.—It is the gross, long-stemmed plants that are the most liable to be destroyed by frosts, and the special preparation of Broccoli for the winter ought, therefore, to commence in the seed bed. Early sowing is a mistake, especially in the more southern localities. Sow thinly now in the open, and sturdy plants will be fit for their final

quarters, quite as soon as the ground in most instances is ready for their reception.

Birds and Small Seeds.—In the neighbourhood of towns, and also where there is much cover, birds are very troublesome, and never more than they have been this season. Owing to the cold wet state of the ground the seeds have been slow of germination, and many which started made such poor progress that the birds were able to clear all off the ground. The season is so far advanced that there must be few or no more failures. Either, therefore, protect with fine mesh fish netting or make the seeds distasteful to the birds before sowing it. Broccoli, Borecole, Cabbage, Turnips, and other small seeds dear to birds, should first be shaken up in a damp cloth (they stick together if heavily sprinkled with water) and be then rolled in powdered red lead sufficiently to coat them with it. Birds seldom interfere with seeds thus treated, and the red lead does no damage.

Celery.—Before the seedlings become tall and weakly the requisite number ought to be pricked out, with a view to having sturdy plants, each with a ball of soil about the roots. Select a hard base, for either ordinary or extemporised frames to stand on, and place inside a layer of decayed manure and leaves to a depth of 4 inches after it has been trampled. On this put about 2 inches of fine light soil, making all smooth and level. Prick out the Celery plants in straight lines 4 inches apart each way, sinking them to the stalks of the seed leaves. Give a gentle watering, cover with lights, and keep close and shaded from bright sunshine till they commence to grow afresh, when they must have plenty of light and air. If no glazed coverings are available shade from bright sunshine, and cover with blinds or mats during cold nights. Seeds may be sown for a very late crop.

Tomatoes.—Dull, sunless weather has favoured the production of strong leafy growth, crops neither setting well nor swelling satisfactorily. Undue luxuriance may be checked by the removal of a portion of the large leaves, but anything approaching wholesale defoliation ought not to be practised. Ventilate early, and on warm days freely, and towards midday, or when the pollen is dry, tap the supporting stakes or wires, as the case may be, or the stems with a padded stick, this effecting a good set of fruit. Plants already furnished with two or more clusters of fruit should be fed freely, soot water answering well for a change, or the later flowers may fail to set. Enough warmth should be maintained in the hot-water pipes to keep the atmosphere dry and buoyant. There ought to be no delay in shifting plants that are to fruit in greenhouses and pits into either large pots, mounds, ridges, or beds of soil.

Open-air Plants.—Directly the late-raised plants are strong enough for potting place each singly in 4-inch pots, using good loamy soil and sinking them to their seed leaves. Keep moderately warm and shaded till they have formed a few fresh roots, when all ought to be freely exposed to the sunshine and air, sturdy plants succeeding best when planted out. Late raised plants not more than 5 inches high are preferable to much larger plants in 6-inch pots, the latter seldom setting an early cluster of fruit.

Seeds to be Sown.—The state of the ground has seriously interfered with garden operations, and it is to be feared that much seed that has been sown will have perished, or slugs and other enemies have destroyed the weakly seedlings almost as fast as they come through the soil. Where only a few plants remain it will probably prove the wisest to hoe over the ground and sow afresh; but if blanks occur at intervals only sow more seed where these occur. This applies to Carrots, Onions, Parsnips, Turnips, Salsify, and the like; also to Peas, Beans, and Lettuce. Beet and Carrot seeds may be sown now in quantity, and so also should main crop Peas, with Spinach between; Kidney Beans sown on warm borders, and Vegetable Marrows singly in 4-inch pots under glass. New Zealand Spinach may either be raised singly in small pots or the seeds be sown in a pan, and the plants potted singly when large enough.

NITROGEN.—Five times as much nitrogen is lost from uncovered fields as from those that are kept covered by Clover and other mulch crops. Keep land covered with some growing crop. It is Nature's way of maintaining fertility. Vegetable and humus matter, important as they are, are not sufficient. Nitrogen can be supplied by the leguminous plants, such as Clover. They are the traps to bring the nitrogen from the atmosphere, that most expensive element when bought in the market. The bulb-shaped roots and nodules are supposed to be the result of bacterial action. Barnyard manure is supposed to contain these bacteria so essential to healthy Clover. An advantage in soiling is the gain in the amount of manure that will be made when feeding stock in the stable. They can be stabled night and day—except a few hours for exercise and sunshine—and all the liquid and solid manure carefully saved. The stable should be so constructed as to permit the entrance of abundance of fresh air. With plenty of windows so constructed that they can be readily taken out entirely, and opening all doors, good ventilation can be secured. During spring and summer it is difficult to absorb all the liquid manure, and some arrangement should be made whereby it can be conveyed to a cistern near the stable, and from there to the field. The liquid manure from horses, cattle, and sheep contains about three times as much nitrogen and potash as the solid excrement. Nitrogen is one of the most expensive plant foods, and all should be carefully saved and applied. The value and strength of liquid manure is shown by the fact that it must be diluted before applying, or it will kill the foliage of most plants. Four parts water to one of liquid manure is as strong as it ought to be used.—("Rural World.")

THE BEE-KEEPER.

LARGE HIVES.

"G. H." has turned on the search light to some purpose, and is advancing in theory if not in practice. In his notes (page 327) he makes a confession that the prodigious weight of honey (350 lbs.) from a single hive had not been obtained in his own apiary, nor in the locality where he resides. If it had one might reasonably have expected him to speak with some authority on the subject. Instead of this, however, he owns to having read in the back numbers of the Journal of a wonderful yield of honey in Scotland. It may perhaps interest "G. H." to know that I spent a few years of my life over the border. In fact I received my first lessons in bee-keeping there, and knowing what I do of that delightful country I am convinced that it is not impossible to obtain a heavy yield of honey if the all-important factor in bee-keeping—the weather—is favourable. This is only likely to happen once in a lifetime, which is as often as 350 lbs. of honey may reasonably be expected from a single stock of bees.

It may be consoling to your correspondent to know that having experimented with various sized frames and hives I have never reached the above figures, neither do I expect to do so. But if I were anxious to do so it would not be an impossibility in this county of broad acres, where our chief harvest is obtained from field Beans and White Clover, as it is a fact well known to all bee-keepers that half a dozen weak stocks will not store a surplus; but make two strong colonies of them, and if the weather is favourable they will commence at once to work in supers; and this principle may be followed out if the bee-keeper is desirous of obtaining a large surplus from one hive to the detriment of others. This plan I do not recommend. It is much better to have as many stocks as is possible in good condition when the honey flow comes, and be satisfied with a good all-round average.

LARGE FRAMES.

I do not agree with "G. H." that to be successful in bee-keeping it is necessary to have frames of extra length and depth, and the hives of extra size to hold them. I have proved times out of number that it is immaterial whether the frames are 14 inches or 24 inches in length if they are worked on rational lines. It is a great advantage to have frames all of one size in an apiary, and whatever size a bee-keeper starts with he will be wise to keep to if his bees progress satisfactorily, unless he is trying experiments. Shallow frames are more useful than those that are deep, and anything over 9 inches I consider too deep. The bees will store an extra quantity of honey instead of filling them with brood. But as the frames are required for winter stores as well as for breeding in the summer, I find the standard frame, which is 8½ inches in depth, a suitable size. The great advantage to be derived from the modern frame hive is the freedom by which the frames may be manipulated. If the frames are of an extra length they are not handled so easily as those of a more convenient size.

NUMBER OF BEES IN A HIVE.

In a previous issue (page 240) "G. H." says, "At the meeting of our Association, March 3rd, one of our members stated that day he had examined one of his hives, which has twelve frames 18 inches by 9 deep; the bees covered nine frames." Again on page 327 he says, referring to the above stock, "The hive has a vigorous queen, plenty of hatching brood, I should think by the end of April or the first week in May will crowd the hive." In some previous notes on the subject he stated the fact of his queens laying from 3000 to 4000 eggs per day.

I would like to ask him what has become of the bees. If on March 3rd the bees covered nine frames, according to his own showing they will only cover twelve frames by the first week in May. From March 3rd to that date is eight weeks; 3500 eggs laid daily will amount to 196,000. Truly this is prodigious, but where are the bees? Are they holding themselves in reserve for that cake of honey for surplus and stores? Perhaps "G. H." will explain, as it is quite beyond my comprehension to know how many bees there will be in that hive by the end of June.

I am inclined to think a mistake was made when the stock was examined early in March. If the day were warm the bees would spread over the combs, but when it became cool in the evening they would probably not cover three frames. Thus quite innocently a man may make a false statement, and instead of having his hive nearly full of bees by the middle of March it would not be in that happy position till probably two months later.—AN ENGLISH BEE-KEEPER.

TO CORRESPONDENTS

All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," 8, Rose Hill Road, Wandsworth, London, S.W. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

R.H.S. Journal (Operator).—The Journal of the Royal Horticultural Society may be procured from the Secretary, R.H.S., 117, Victoria Street, Westminster, London, S.W. The price is 5s., and the postage would probably be 4½d.

Rhubarb (T. Hill).—It would be impossible for even an assemblage of members of the Fruit and Vegetable Committee of the Royal Horticultural Society to name the variety from two sections of a stalk each 2 inches long. The portions are the colour of, and sharply ribbed-like, the London Early Red. If half a dozen stalks with leaves arrived in a fresh state the variety might possibly be named by comparison in the collection at Chiswick. We are unable to inform you from whom the variety Elford Rose can be obtained, but mention it in case any of our readers can supply the information. The favourite variety for increase by many extensive growers of Rhubarb for the supply of London is Hawke's Champagne. It is early, pink when cooked, and of excellent quality. The work on gardening you mentioned has been long out of print, as have also the numbers of the *Journal of Horticulture* about which you inquire.

Collapse of Cucumber Plant (J. G.).—The stem is split above the soil, and more or less decayed to a height of 6 inches, being quite rotten at its junction with the soil, thus cutting off the supplies of sap and causing the collapse of the plant. Part of the root-stem is also destroyed, but only to the extent of about 2 inches, the radical root and the side roots being perfectly healthy. There are not any nodosities on the roots, such as are caused by eelworm, and even the root-stem is not swollen, as usually occurs under attacks of nematoid worms. The cause of the misfortune is, therefore, the decay of the stem at the collar. This is usually attributed to canker caused by damp, and the preventive and repressive measures prescribed in such cases are keeping water from the stem and rubbing quicklime into the affected part. This acts well if taken in time. In the present case, as no attacking foe was visible to the naked eye, the microscope was brought into operation. On the part infected above ground nothing was found in the shape of outgrowths, but in the tissues the mycelial threads of a fungus were visible enough, penetrating the living tissues, ascending the stem, and causing the cells to become brown and dead. This was the cause of the mischief, and the parasite had entered the plant at the point on the root-stem where the radicle issues from the seed. The hyphæ, or young mycelial threads of the fungus, in the living tissues are those of *Botrytis cinerea* var. *sclerotiphila*, Sacc., which in fructifying form springs from an externally black sclerotium, once called *Sclerotium durum*. It is the active form of the smother fungus, *Sclerotinia sclerotiorum*, Mass., and one of the most malignant to Beet, Carrots, Potatoes, and Turnips outdoors, Cucumbers, Melons, and Tomatoes inside. This, then, and this only, has been the cause of your plant decaying in the stem. In the decayed parts of the root-stem, however, were found some eelworms, the blunt-shaped species, *Tylenchus obtusus*, Bastian, but not in living tissues, the roots not infested by the fungus being perfectly normal and healthy. There was also a mite, the true root-mite, *Rhizoglyphus echinopus*, Clap., but this was not connected with the living tissues of the roots. It was the perfect eight-legged form, which is far more difficult to kill than the six-legged or larval form—indeed, it lived a considerable time in a solution of aniline, 1 in 20 parts water, and is mentioned as showing the importance of early treatment. The compost was also examined, and found to consist largely of vegetable matter in a state of decay, and, despite the baking before using, contained the sclerotia of the fungus,

also eelworms and mites. This we consider the source of infection. Nothing could possibly result from the application of Thomson's Vine manure but benefit to the Cucumbers and prejudice to the micro-organisms. As to the baking of soil, we have found that a temperature over 125° will kill eelworms, 145° mites, and 212° the sclerotia of fungi. Possibly unbaked soil has been added since the plants were placed out; in any case the micro-organisms were in the soil and ruined the plants. When the fungus or the eelworms have entered the tissues of the stem and destroyed the cambial cells the case is beyond remedy. For saving the remaining plants we know of nothing better than Little's soluble phenyle, 1 part in 96 parts water = 1 gill ($\frac{1}{4}$ pint) to 3 gallons of rain or soft water, applying as in ordinary watering, and repeating as required. If taken in time it acts well against root-fungi, eelworms, and mites.

Insects on Peach Tree Branch (D. M. L.).—The insects on the Peach tree twig are very fine examples of the Filbert scale (*Leucanium hemisphericum*), which, when full grown, and before emitting cottony matter from beneath the scale, is a quarter of an inch long, three-sixteenths of an inch broad, and one-eighth of an inch deep or high. It is rather of uncommon occurrence in this country, but may sometimes be found on Apricot trees grown under glass, also on Camellias. When the scale becomes mature, which occurs when the eggs have been produced in a cottony substance beneath the "shell," the insect emits from the posterior end a white flocculent substance, and this contains hundreds of pale brown or reddish bodies, just visible to the naked eye. In the course of a few days these emerge as six-legged creatures with somewhat long horns and caudal appendages, roam about, and soon fix on a smooth part of the bark of either a young shoot or not very old wood, push in a beak, and become fixed to the place for life. To prevent this you must at once remove the scale and eggs in the cottony matter; they may be placed in an old tin containing a little petroleum, and finally burned. Then to make sure of any that may have escaped in the early predatory stage, apply an insecticide, any or all of those advertised being effectual and safe if the instructions are carefully followed. If you prefer a home-made one place 1½ lb. of soft soap in an iron pan with a gallon of soft water, and dissolve by heating and boiling. When dissolved and hot remove from the fire and add half a pint of petroleum, stirring briskly till amalgamated. Dilute to 10 gallons with hot soft water, and when cooled to 90° to 100° apply with a syringe, or preferably with a spraying apparatus for sake of economy. If this be repeated in ten days or a fortnight we do not think you will be further troubled with the scale. Of course, it may be re-introduced, but that must be guarded against by having the source whence it came found out and the pest eradicated there.

Foreign Seeds (Seeds).—*Canna indica*, which few gardeners do not know and grow, is a very useful plant for greenhouse decoration and sub-tropical or other methods of summer gardening. The seeds should be sown in heat in a warm house or Cucumber bed. When the plants are large enough to handle pot singly and grow in a rich and porous compost, such as equal parts turfy loam and decayed manure with a little peat and some sand. *Cesalpinia echinata* is an ornamental stove evergreen tree, not much grown on account of the space required and the time the plant takes to flower. A mixture of loam and leaf mould suits it. The flowers are produced in racemes, pear-shaped, and yellow with red, very beautiful, as most of the Leguminosæ are. The seed should be sown in strong heat. *Anona muricata* is the "Sour Sop" of the West Indies, a stove evergreen shrub or tree growing about 15 feet high. It thrives well in rich loamy soil mixed with a little peat. The seeds grow readily if sown in pots and plunged in a hotbed. It is grown for its fruit. *Passiflora foetida* is the Wild Water Lemon of tropical America, an annual or sometimes, but rarely, perennial. It requires a stove. The flowers are whitish, the corona variegated with purple and blue. Treat similar to Cucumbers or Melons. *Abrus precatorius* is a very ornamental and delicate much-branched deciduous stove climber, the roots having the properties of the common liquorice. The flowers are butterfly-shaped, pale purple, and disposed in axillary clusters. The seeds should be sown in heat, and the plant requires strong heat to keep it healthy and to flower it well. It is called the "Prayer" plant, from the Buddhists using the bright scarlet seeds, with a black spot at the base, for making rosaries. Sandy loam best suits it. *Psidium Guava* is a low tree, evergreen, and desirable for its aromatic fruits. It requires a stove, thriving best in a compost of sandy fibrous loam and a little leaf mould or old cowdung with some sand. Perfect drainage must be provided. The yellow globose fruits are produced abundantly when the plant becomes sufficiently large, but seedlings come slowly into bearing. It is esteemed for its fruit—the Guava of renown. *Tephrosia candida* is the Indian Hoary Pea, a low stove shrub, flowers reddish or white, produced in terminal and lateral racemes rather copious, the standard being very silky. It thrives in a compost of sandy peat and leaf mould. *Bixa Orellana* yields the drug called Annotta, which is prepared from the red pulp that covers the seed, and is used in preparing chocolate, by farmers for colouring cheese, and for dyeing silks orange or yellow. It is a stove evergreen tree, growing 30 feet high. Seedlings are a long time before they flower. Sow in bottom heat. The flowers are peach-coloured, and borne in terminal clusters or corymbs. A compost of loam and peat suits it. *Acacia glauca* is an evergreen shrub, 5 to 10 feet in height, and produces abundance of white flowers, stalked, spikes globose, axillary, usually twin. The seeds should be sown in sandy peat in gentle heat. When established the plants grow well in a greenhouse. *Desmodium gyrans*, the Moving or Telegraph Plant, a great curiosity, the lateral leaflets moving up and down, either steadily or by

jerk, the movements being most marked during bright sunshine. It is a stove plant of easy culture in a compost of sandy loam and peat. The flowers are violet, borne in numerous racemes disposed in a panicle. The plant grows 1 to 3 feet high. A brisk bottom heat is required for raising the seedlings and pushing the plants along. *Artocarpus incisa* is one of the noblest of the Nettle family, the True Bread Fruit, a stove evergreen tree, growing 50 feet in height, the leaves being 2 to 3 feet long, deeply lobed or incised, deep green on the upper surface, pale below. It forms a very distinct and ornamental stove plant. The extraordinary fruit is produced from the axils of the leaves in large globular heads, and is highly valued by the South Sea Islanders as an article of food. Perfect drainage is a first consideration, as the plant requires copious supplies of water, a very high and moist atmosphere, a compost of two parts rich loam and one part leaf mould, with a free admixture of sharp sand. Brisk bottom heat is required for the germination of the seeds. *Thevetia nerifolia* is the Exile Oil Plant, which has linear glabrous shining leaves about 3 to 6 inches long. It develops into a shrub growing 12 feet in height. The flowers are saffron-yellow, about 3 inches long, produced in sub-terminal cymes much shorter than the leaves, and sometimes one-flowered. It thrives in a compost of fibrous loam with a little leaf soil and some sharp sand, in a stove temperature. Pitango Cherry we do not know—at least under that name. Perhaps some of our correspondents may oblige with information.

Chemical Manure for Strawberries (T. G.).—As you do not want an expensive manure, but an economical one, and quickly acting, as it must be to effect the object you have in view, nothing would serve you better than nitrate of soda, which should be 95 per cent. purity, and crushed quite fine on a hard floor before use. Apply 1 oz. per square yard, or 2 lbs. per rod, taking care not to scatter it on the young leaves and crowns, especially when these are wet, or it may blacken them. If the soil contain sufficient phosphoric acid and potash in available form, as we think will be the case from the ground having been heavily manured, there will be no need to use anything but the nitrate of soda and the liquid manure you propose, which we presume is that of stables and cow house. You may, however, if you desire, employ the following mixture:—Mineral superphosphate (37 to 39 per cent. phosphate of lime, soluble), 3 parts or lbs.; muriate of potash (80 to 85 per cent. purity), 2 parts or lbs.; nitrate of soda (95 per cent. purity), 1 part or lb.; mixed, applying 4 oz. per square yard, being careful not to use it over the foliage or crowns of the plants. This should be given without delay, pointing in very lightly, or hoeing or raking, and when the fruit is set and commencing to swell, supply nitrate of soda as before mentioned. If you supply proper moisture the crop ought to be, other conditions being favourable, a very heavy one, and the fruit large. Be careful, however, not to overdo either the manuring or the liquid applications, for the plants can only give superior fruit with abundance of healthy and active roots, therefore you must exercise judgment in the use of the fertilisers, only applying half the amount named at a time if the roots are near or at the surface.

Vine Growth Diseased (D. M. L.).—The point of the shoot was blackened, and more or less covered with a white mould, the downy mildew of the Vine (*Peronospora viticola*). It is a minute parasitic plant, that develops at the expense of the tissues of the Vine, thus causing the blighting of the leaf and decay of the fruit. It attacks all the green parts of the Vine, including the young shoots, as well as the leaves and bunches, and, like other fungi, is reproduced by means of spores. There are plenty of these in your specimen, and one of them speedily divided in a drop of water, and each particle (zoospore) escaped by an opening in the spore wall. It moved about in the water for a few minutes by means of its head and tail appendages (hairs or cilia), rested on a portion of leaf, pushing a germ tube (like the radicle of a seed), which entered a stoma or transpiration opening, and passed entirely out of sight. It is well to see these things, and find by frequent examination that the tube continues to grow, divide, and push other portions (hyphæ) between the cells of the leaf, forming the mycelium, readily seen, in a section, traversing the intercellular spaces, and as there is little nourishment to be had there, this mycelium pushes minute processes (haustoria) through the cell walls, and absorbs the cell contents. After this mycelium becomes strongly developed it pushes growths outwards, either through the stomata or ruptured epidermis, which are the erect hyphæ or fruiting branches, and these (conidiophores) bear upon their tips, in a branched head, not unlike a bunch of Grapes, small oval bodies (conidia) or spores. The outgrowths or mildew, visible to the naked eye, is composed of these fruiting branches and their spores. The latter are shed when mature, and scattered far and wide by every puff of wind. If they alight on the leaf or other green part of a Vine, and there is sufficient condensed moisture, they at once proceed to form zoospores, and these to act on their own account, as before described. It is well to note, however, that the "fruit" only develops under favourable atmospheric conditions, such as warmth and a soft glow of moisture, hence the mycelium may, as in your leaf, exist in the affected parts of the Vine for some time before the outward manifestation of its presence or mildew occurs. In the diseased tissues another form of spores, called "resting," are produced, and in these the fungus passes over from year to year. As regards treatment, the infested parts, so far as these are browned or blackened, should be cut away and burned, and the Vines dusted with any of the advertised fungicides in powder, such as anti-blight and fostite, using a bellows apparatus and the least possible coating. We give a fuller reply than usual, as the downy mildew or brown rot is becoming too prevalent in this country.

Microscope for Examining Fungoid and other Micro-organisms (H. T.).—Mr. Abbey says there is no need for a costly instrument for practical and really useful work. There are no mysteries about the subject, nor are they more difficult to learn than the science and practice of growing Cabbages. A good garden or seed microscope that may be used as a simple and compound instrument for the various requirements of gardeners is all that is required. He further says it is better to invest in the United Horticultural Benefit and Provident Society, and also make provision for old age by becoming a life member or annual subscriber of the Gardeners' Royal Benevolent Institution than in costly microscopes and highly scientific works. He has a small microscope that may be packed in a mahogany case 4 inches by 3 inches and 1½ inch deep, and it only cost £1 5s. It shows all fungoid pests of crops, eelworms, and mites, as large as need be, and was had from Mr. L. P. Casella, 147, Holborn Bars, London, E.C. If you want a thoroughly reliable English-made instrument we advise a Student's Improved Binocular Microscope, costing £6 6s. To discern micro-organisms of the bacterial class you will need a power of not less than 750, when they will appear as mere specks, and without considerable practice are difficult to make out. The instrument would, with reasonable care, last a lifetime, and certainly be all you could desire in your practice as a gardener.

Names of Fruits.—*Notice.*—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. *In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing.* The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. *They should be sent on the first indication of change towards ripening.* *Dessert Pears cannot be named in a hard green state.* (M. P.).—1, Bess Pool; 2, Dummelow's Seedling, but known as Normanton Wonder in your district; 3, Gooseberry Apple; 4, Lord Burghley; the Pear is Bergamotte Esperen. (Felix).—The Grape is without doubt Lady Downe's, unusually fresh and firm for the season.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, at being often difficult to separate them when the paper is damp. (C. F.).—1, Arabis alpina; 2, Aubrietia Leitchii; 3, dead. (W. J. H.).—Auriculas are florists' flowers that can only be named by comparison in a large collection, such as that of Mr. Douglas at Great Bookham. (A. T.).—The Narcissus is bicolor Horsefieldi, and the Muscari is botryoides. (C. S.).—No. 1 is one of the Broom Rapese (Orolanche), a leafless herb, which lives as a parasite on the roots of other plants; 2, Prunus padus (Bird Cherry). (W. H. Y.).—Oncidium flexuosum; a form of Adiantum trapeziforme, but the specimen is not large enough to distinguish the variety.

ROYAL METEOROLOGICAL SOCIETY.—The monthly meeting of this Society was held on Wednesday evening, the 21st inst., at the Institution of Civil Engineers, Great George Street, Westminster, Mr. E. Mawley, F.R.H.S., President, in the chair. Mr. W. H. Dines read a paper on "The Relation between Cold Periods and Anti-Cyclonic Conditions of Weather in England during the Winter." There seems to be a generally accepted belief that anti-cyclonic conditions during the winter are likely to be accompanied by exceptional cold, but in so far as England is concerned the author's observation has led him to the opposite conclusion, and he always expects a frost to break up as soon as the barometer gets much above 30 inches. To test the truth of this theory he tabulated the height of the barometer during all the cold periods during the three winter months of the fifty years 1841-90. Out of seventy-four frosts he found that sixteen only had a pressure exceeding 30.20 inches, and the majority of these were of very short duration. Thirty-three, or less than half, had a pressure exceeding 30 inches; twenty-one had a pressure below 29.80 inches, and these included almost every frost in the period remarkable for its length or severity. A paper by Mr. A. Lawrence Rotch of the Blue Hill Observatory, Mass., was read, describing the use of kites in that Observatory to obtain meteorological records in the upper air. A paper by Mr. A. B. MacDowall on "Suggestions of Sunspot Influence on the Weather of Western Europe" was also read. The author believes that there is a tendency to greater heat in the summer half year, and to greater cold in the winter half year near the phases of minimum sunspots than near the phases of maximum, the contrast between the cold and heat of the year thus tending to be intensified about the time of minimum sunspots.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, The Royal Gardeners' Orphan Fund, Chiswick, W.

COVENT GARDEN MARKET.—APRIL 28TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, $\frac{1}{2}$ sieve	1	3	to	2	6	Lemons, case	11	0	to 14 0
Filberts and Cobs, per 100lb.	0	0	0	0	Plums, $\frac{1}{2}$ sieve	0	0	0	0
Grapes, per lb.	3	0	3	6	St. Michael Pines, each ..	3	0	8	0

VEGETABLES.

			s.	d.	s.	d.				s.	d.	s.	d.
Asparagus, per 100	..	..	0	0	to	0	0	Mustard and Cress, punnet	0	2	to	0	4
Beans, $\frac{1}{2}$ sieve	..	..	0	0	0	0	Onions, bushel	..	..	3	6	4	0
Beet, Red, dozen	..	..	1	0	0	0	Parsley, dozen bunches	..	..	2	0	3	0
Carrots, bunch	..	..	0	3	0	4	Parasips, dozen	..	..	1	0	0	0
Cauliflowers, dozen	..	..	2	0	3	0	Potatoes, per cwt.	..	..	2	0	4	9
Celery, bundle	..	..	1	0	0	0	Salsafy, bundle	..	..	1	0	1	0
Coleworts, dozen bunches	..	..	2	0	4	0	Seakale, per basket	..	..	1	6	1	0
Cucumbers	..	..	0	4	0	8	Scorzoneria, bundle	..	..	1	6	0	0
Endive, dozen	..	..	1	3	1	6	Shallots, per lb	..	..	0	3	0	0
Herbs, bunch	..	..	0	3	0	0	Spinach, pad	..	..	0	0	4	0
Leeks, bunch	..	..	0	2	0	0	Sprouts, half sieve	..	..	1	6	1	0
Lettuce, dozen	..	..	1	3	0	0	Tomatoes, per lb.	..	..	0	4	0	9
Mushrooms, per lb.	..	..	0	6	0	8	Turnips, bunch	..	..	0	3	0	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Arbor Vitæ (various) doz.	6	0	to	36	0	Ficus elastica, each	1	0	to 7	0
Arum Lilies, per dozen ..	9	0	18	0	Foliage plants, var. each	1	0	5	0	
Aspidistra, dozen	18	0	36	0	Genista, per dozen	6	0	10	0	
Aspidistra, specimen plant	5	0	10	6	Hyacinths, large, per dozen	6	0	9	0	
Azalea, per dozen	18	0	36	0	Lily of the Valley, 12 pots	9	0	12	0	
Cinerarias, per dozen ..	6	0	9	0	Lycopodiums, dozen	3	0	6	0	
Cyclamen, per dozen ..	8	0	12	0	Marguerite Daisy, dozen..	6	0	9	0	
Dracæna, various, dozen ..	12	0	30	0	Mignonette, per dozen ..	6	0	8	0	
Dracæna viridis, dozen ..	9	0	18	0	Myrtles, dozen	6	0	9	0	
Erica, (various) per dozen	9	0	18	0	Palms, in var., each	1	0	15	0	
Euonymus, var., dozen ..	6	0	18	0	„ (specimens)	21	0	63	0	
Evergreens, in variety, doz.	4	0	18	0	Pelargoniums, per dozen ..	9	0	15	0	
Ferns in variety, dozen ..	4	0	18	0	„ Scarlet, per doz. ..	4	0	8	0	
Ferns (small) per hundred	5	0	8	0	Spiræa, per dozen	6	0	9	0	

Roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Anemones, dozen bunches..	1	6	to	3	0	Mignonette, dozen bunches	3	0	to 6	0	
Arum Lilies, 12 blooms ..	5	0		9	0	Narciss, (various), dozen					
Asparagus Fern, per bnch.	2	0		3	6	bunches	1	3		2	0
Azalea, per dozen sprays ..	0	6		0	9	Narciss, Yellow, dozen					
Bouvardias, bunch	0	6		0	9	bunches	1	0		2	0
Carnations, 12 blooms ..	1	6		3	0	Orchids, var. doz. blooms	1	6		12	0
Daffodils, double, dozen						Pelargoniums, 12 bunches	6	0		9	0
bunches	1	6		3	0	Polyanthus, dozen bunches	1	0		2	0
Daffodils, single, dozen						Pyrethrum, dozen bunches	1	6		3	0
bunches	2	0		4	0	Roses (indoor), dozen ..	0	9		1	6
Eucharis, dozen	3	6		4	0	„ Tea, white, dozen ..	1	0		2	6
Gardenias, dozen	3	0		6	0	„ Yellow, dozen (Niels)	3	0		4	0
Geranium, scarlet, doz.						„ Red, dozen blooms ..	1	6		4	0
bunches	6	0		9	0	„ Safrano (English),					
Hyacinth (boxes) Dutch..	1	6		4	0	dozen.. .. .	1	0		2	0
Lilac, White (French), per						„ „ Pink, per dozen ..	4	0		8	0
bunch	8	0		4	0	Smilax, per bunch	4	0		6	0
Lilium longiflorum, 12						Tuberose, 12 blooms.. ..	1	0		1	6
blooms	2	0		4	0	Tulips, dozen blooms ..	0	6		1	0
Lily of the Valley, 12sprays,						Violet Parme, per bunch ..	2	6		3	6
per bunch	0	6		1	0	„ per doz. bunches ..	1	0		1	6
Maidenhair Fern, per dozen						„ (French), per dozen					
bunches	6	0		8	0	bunches	0	9		1	6
Marguerites, 12 bunches ..	2	0		3	0	Wallflowers, dozen bunches	1	6		4	0



THE TURNIP CROP.

THE time for sowing Turnips will soon be here, and before considering what are the best varieties to grow and the best methods of cultivation, we should like to briefly discuss what is the real value of the Turnip crop when it is grown. We have been much interested by a controversy in a contemporary between

an unknown contributor and an agricultural professor as to the value, great or small, of this crop.

The professor quotes £1 per acre as a price at which Turnips can be bought for consumption on the land, and argues that they will pay the farmer to grow at such a low price if he gets plenty of dry food consumed with them so as to highly enrich the soil for the succeeding corn crop. On the other hand the anonymous gentleman repudiates the value of eating Turnips on the land, but claims that he can make £10 per acre of them to cart off for sheep on grass, and publishes a balance-sheet in support of his contention. The weak points about his system are that 10 acres of useful—nay, we might say good—grass are required for the winter months upon which to consume 1 acre of Swedes; also that he buys his sheep on November 1st and sells them out again on March 1st at a profit of 15s. per head, or nearly 1s. per head per week.

Of course if this can be done year by year there would be a fair profit—a very good profit on grazing sheep on roots. But such a profit could not be made during a series of years unless it were in a district unsuitable to the growth of good Turnips, and where a good crop of them would be correspondingly valuable. So much depends on locality as regards the value of Turnips. In the grass districts of the northern counties, and in Scotland, the Turnip acreage is a small one compared to that of grass and other crops, and it is not therefore surprising to find that roots in those parts fetch high prices. On the other hand, in arable counties where the area under Turnips is a large one, it is not uncommon to find fair crops sold at £1 per acre, and in a plentiful season, with dear sheep, they are often given away, as spring approaches, on condition that they are consumed on the ground.

But what is an acre of Swedes worth to an average farmer? This is a very difficult question to answer, the roots being so intimately allied with grass, Clover, and straw as food for stock. It is easier to ascertain the value of roots when used by sheep than when used by cattle; but the seed and grass pastures used by the sheep during the year must be all brought into account, and must have a fair share of the proceeds.

In order to work the matter out in figures, we will take as an example a farm of 400 acres—300 arable, 100 grass. Such a farm should be self-supporting, and independent of the fluctuations of markets. The 75 acres of seeds which there would be under the four-course system would carry about 200 ewes, with about 250 lambs; these would require fully 60 acres of good Turnips for the following winter, and allowing for losses, there should be 230 hoggs to sell in the spring. These should realise about 50s. each in the wool.

230 hoggs at 50s.	...	...	...	...	...	£	s.	d.
						575	0	0
Now let us deduct expenses—								
Shepherds' wages	...	...	...	£52	0	0		
Man and lad, twenty-six weeks	...	...	...	28	12	0		
Loss on ewes (lambing)	...	...	...	20	0	0		
Grass and Clover for lambs after weaning	...	...	...	30	0	0		
Two-thirds cost of artificial foods	...	...	...	50	0	0		
						180	12	0
						£394	8	0

The offal account (carcases and skins) would pay for the fencing, leaving £394 8s. to allot to the credit of the seeds and Turnips. £2 10s. per acre would be a very liberal price for the seeds, so if we deduct 75 acres at 50s. (£187 10s.) we have £206 18s. left to the credit of the 60 acres of Turnips and Swedes, or as nearly as possible £3 10s. per acre. As this would barely cover the cost of growing the profit would depend entirely on the success of the succeeding corn crop.

This brings us face to face with a difficulty, and one of the most serious that arable farmers have to contend with. The land being well farmed, and a fine crop of roots having been grown and

consumed on the land, should the season be a favourable one a fine standing crop of Barley or Oats may be secured, and therefrom a fair return for the two years' outlay; but should the season be a wet one the result may be a mass of twisted and rotten straw, most expensive to harvest, with a yield of grain small in quantity, light in weight, and only fit for feeding purposes, whilst the young Clovers will be conspicuous by their absence, having been completely smothered. This difficulty has led many thoughtful farmers to grow two white crops after Turnips, and to sow their small seeds with the second one, which, not being too heavy, gives the young seeds a fair chance.

We are convinced of one thing—that the loss of the Clover plant is a most serious misfortune; there is not only the loss of pasturage, but Clover is such a recuperative crop that we would rather lose our Turnip crop than have a bad piece of seeds, as we think the Turnip crop of less importance, valuable as it is.

There is another point of value in connection with Turnips that we have not mentioned, that is the cleaning of the land. If we did not grow Turnips the land would have to be fallowed occasionally, and if we can make as much of our Turnips as they cost we have got our land cleaned for nothing. This must never be lost sight of, as it is of little use manuring if the land is full of weeds and twitch.

WORK ON THE HOME FARM.

Weather conditions are quite those usually associated with the month of April, except that the showers have hardly brought with them the warmth we had expected and been hoping for. Still, things are better than they were. We have had no more sharp frosts, and the appearance of the young Wheat as well as that of the pastures is much improved; keeping, however, is now very scarce, and the markets for all kinds of stock, with the exception of prime fat cattle, are very much depressed.

The land is working down well, and we have the promise of a good tilth for Turnips and Mangolds; but there is no chance of getting twitch burnt at present, and it has all to be gathered up and carted off. We are thankful to say that there is not much of it, but what there is is very full of life and growth, and being in small bits it is a tedious job raking and gathering it up.

The Potato ridges were rather rough, so we are harrowing them down with the ridge harrows and shall very shortly ridge them up again with a light earthing plough. Potatoes thrive much better in loose, freshly moved ground, and the labour will be saved in the hand-hoeing, which is always more expensive than horse work. Earthing up now is also a safeguard to the Potatoes, if they are early ones, against the serious damage they may sustain from late frosts if they get their noses above ground too soon.

We are getting the cattle to sleep out now, but it is cold for them and they require careful watching. The lambs' tails have been shortened, and we have docked the ewes—i.e., trimmed the wool from the back of the thighs and round the tail; this is a necessary operation at this season, but should not be done when the weather is very cold, or exposure of the udder may bring on downfall, a very dangerous complaint amongst ewes.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1897. April.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
Inchs.	deg.	deg.	W.	deg.	deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 18	29.959	49.6	43.6	W.	46.1	59.4	47.7	107.0	35.5	—
Monday .. 19	29.902	43.1	44.5	W.	46.2	56.4	39.9	98.7	34.8	0.177
Tuesday .. 20	29.801	46.9	43.2	N.	46.3	56.8	41.6	100.3	40.1	0.029
Wednesday 21	29.792	46.8	46.2	S.E.	47.7	55.7	45.1	61.9	39.2	0.104
Thursday.. 22	30.094	46.2	42.4	N.E.	47.0	52.8	43.9	97.9	43.7	—
Friday .. 23	30.081	46.1	43.1	N.E.	48.0	53.4	36.7	100.2	33.1	—
Saturday .. 24	29.920	47.3	41.8	N.E.	45.4	52.9	38.5	98.0	33.9	—
	29.907	47.3	43.5		46.2	55.3	40.9	94.9	37.2	0.310

REMARKS.

18th.—Brilliant early, and generally sunny all day; fine night.
19th.—Generally sunny in morning; overcast afternoon, and rain in evening.
20th.—Rain till 4 A.M., and overcast till 1 P.M.; generally sunny after.
21st.—Dull, with almost continuous rain or drizzle till 5 P.M., and overcast night.
22nd.—Drizzle in small hours; overcast and dull till 10 A.M., generally sunny after.
23rd.—Fine with much bright sun, but frequently cloudy.
24th.—Cloudy at times, but much bright sunshine.
Another week, the character of which is almost precisely that usual for its date.
There was no frost even on grass.—G. J. SIMONS.

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12 Very fine Single unnamed kinds, 12/-; 6, 6/6.

12 Very good Single unnamed kinds, 6/-; 6, 3/6.

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6 Finest named kinds, 5/-; 3, 3/-.

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Journal of Horticulture.

THURSDAY, MAY 6, 1897.

EXTRA HELP IN GARDENS.

MORE perhaps than at any time during the past twenty years are gardeners in large establishments and small groaning under the pressure of work which daily seems to become more crushing. Scheme as they may, strive as they will, early, late, and all the time of daylight, they cannot master the position. They long, too often in vain, but all the same keep longing and hoping for a little help to extricate them from their difficulties, and put things straight for the summer.

Hardworking and overworked gardeners know that being behindhand at the present time means a scuffle all the season, and they deplore their inability to do what they wish for their own credit and the satisfaction of those whom they serve. A little extra help, such as a man or two in small gardens for a fortnight, or a "gang" from the "estate" in large establishments, would be a boon indeed to many an earnest man, nor would it be to his advantage alone or even chiefly. When arrears are brought up at this season of the year a gardener has a much better chance than he would otherwise have of keeping abreast of routine work, to the distinct advantage of the various crops in the fruit and vegetable departments, while the several plants that he is expected to grow can have the attention they need at the proper time. This is most important. Equally so is a mastery over work in respect to walks, lawns, and general neatness. Gardens and pleasure grounds are then kept in a manner which renders them in the highest degree enjoyable and satisfactory to all—owners, gardeners, and visitors.

When work cannot be done at the proper time, but has perforce to wait for ten days or a fortnight, not only does much of it take twice the time to complete, but it is not then done half so well as it should be. The full truth and significance of this can perhaps only be really appreciated by gardeners, or those proprietors who take pride in their home surroundings, and have been closely observant of the influencing conditions. Fortunate are gardeners whose duty it is to serve those who see as clearly as themselves not only the condition of things at the moment, but also the eventual outcome of these conditions;

and doubly fortunate is it when those garden lovers with knowledge also possess the means for affording what may be termed grants in aid during a time of pressure, and the benefit of which would be seen and felt all through the season. It is common to make such grants, both in many public parks and private gardens, at this period of the year, and this, though quite unknown by admiring visitors, largely accounts for the cleanliness and orderly condition of the enclosures which are so much admired.

That late work involves the greatest cost in time-absorbing labour, and gives the least satisfactory results is seen in all the departments of a garden, and nearly all the duties of the gardener. Let, for instance, walks become encrusted with weeds: they are not only glaringly unsightly, but thrice the time, and often very much more, is required in making them presentable than would have sufficed for the prevention of the evil, especially if the gardener had at his command, before other work became pressing, one of those cheap preparations by which walks and drives are kept free from vegetation throughout the year.

Let lawns and verges be left untended ten days or more beyond the proper time for the use of the machine and shears, and note the heavier labour required, and extension of hours occupied while the garden during the period of enforced delay has had a more or less unkempt appearance; and even when the work is at last done the effect on the lawn is never the same as if it had had the right treatment at the right time.

Let beds, borders, and vegetable quarters become masses of luxuriant weeds, each day increasing in height and vigour till they almost master the hoe, and hand-pulling has to be resorted to; then ten hours have to be spent for clearing a given area when one hour or less would have amply sufficed if the hoe could have been run through the surface periodically when the weed seeds were germinating. Moreover, by this practice the richness of the soil is conserved and even enhanced, whereas the great gangs of thieves, the weeds, drain it of its nutriment to the prejudice of useful crops or whatever it may be desired to grow.

Let seedling lines in the vegetable garden be left unthinned too long, then the superfluous plants themselves become robbers, taking from the soil its virtues and giving nothing in return; but this is not all, they spoil those plants which should remain, and which, if afforded the requisite space to develop, would utilise the resources of soil and air, return profit to the owner, and be creditable to all concerned.

It is precisely the same with overcrowded plants which are being raised for the beautification of gardens. If not thinned or transplanted when they ought to be, and often cramped for they are more and more weakened every day, soon culminating in miserable spindlings, and mere apologies for the plants they ought to be. There are, or soon will be, millions of plants on the road to ruin through the want of timely relief. Gardeners know this quite well, and not a few grieve over the evil they cannot avert, because one pair of hands cannot be engaged in three or four occupations at once, each about as urgent as the other. Something must thus of necessity wait, and get worse daily in the struggle to escape from the crowd.

Gardeners also know full well in the cultivation in pots of various plants which they are expected and hope to produce in the best condition, that if these plants, no matter what they are, cannot be afforded more root room at the right time, they must suffer; and if they perforce must be left week after week, either by want of materials or the urgent demands of other duties, it is well known that anything like the success the growers hoped for and expected when the year was young becomes a practical impossibility. Neither plants nor their cultivators can have a fair chance under those conditions, and both are often objects to be pitied rather than envied.

Just one other example may be noted of the loss of time, and what might be valuable produce, caused by delay in an important operation in gardening—namely, the thinning of Grapes.

Let this be done at the right moment, and five bunches may be thinned in the time that is necessary for thinning one bunch when the berries are wedged. Then think of the drain on the Vine of the myriads of useless berries which have been permitted to hang so long, and of the "mauling" of the bunches that have been neglected—in some instances it may be, perhaps, through want of energy and promptitude, but in many cases certainly through overwhelming pressure.

A week ago we found two men sedulously engaged in thinning Grapes till the last hour of daylight permitted. "We can only touch them," the senior said, "from daylight till seven o'clock in the morning, and again after six o'clock in the evening. The conservatory *must* be done before breakfast, then we have 3 acres of pleasure grounds, over an acre of kitchen garden, five houses for plants, Cucumbers, Melons, and Tomatoes, besides pits and frames. We can do nothing in Grape-thinning and Vine-dressing in the daytime, and the thinning nearly beats us." Then, in reply to a question, he went on, "Overtime! No, we are not paid; it has never been mentioned, and I should be satisfied if I could keep the place to my mind and have really good houses of Grapes." That represents the earnest, zealous, devoted, active British gardener, and his employer has probably no conception of the pressure under which his two men work.

This example of diligence in duty came to mind when Mr. Wilks, in his earnest speech in response to the toast of "Gardeners and Gardening," at the dinner of the Royal Gardeners' Orphan Fund. It was to the effect that no men worked so strenuously over so many hours for the emoluments they received as did gardeners. Impelled by devotion and by zeal they sought for knowledge and applied it from dawn till dusk in summer, and watched the fires through the midnight hours in winter lest harm should befall the tender products which they loved as if they were their own. For gardeners there were no such luxuries as eight hours a day. There were no strikes among them; few holidays for change and repose, or brilliant rewards for faithful loyal service, and duties discharged so well.

The words were not uttered to tickle the ears of working gardeners, for few of them were there; and it was all the more pleasing to note the responsive cheers of employers of gardeners, of whom the meeting was so largely composed. It is clear the work of gardeners is appreciated, if not in all cases adequately recompensed. Then Mr. Wilks went on to make significant allusions which were not of a cheering character for gardeners during this year of rejoicing on the occasion of the great reign of our good and gracious Queen. With the most worthy object of doing honour in various ways to the remarkable event, he feared some diversion of means usually devoted to gardens, and even to charities, might occur; in fact in one great organisation of rescue (of "beggars and outcasts," for whom the Princess of Wales is pathetically pleading) known as Dr. Barnardo's homes, a fall of £4000 was already a melancholy fact, and the total loss during the year was expected to amount to £6000, because of the diversion indicated.

It can only be hoped that there may be, as in innumerable instances there will be, local compensations, and as gardens will contribute largely to the joyousness of gatherings, public and private, it is much to be desired that eminent, faithful, and hardly pressed gardeners will not be forgotten; but that where a little extra help can be afforded to worthy, striving men it will be granted, and that is why this reminder is given of the existence of great, and in some instances of almost crushing pressure in gardens at this period of the year. In numbers of cases relief could be given at a comparatively small outlay, especially if given in good time. Then would the season be made happier to the gardener, while the gardens would afford the greater satisfaction to those who may be privileged to enjoy them during this memorable year.

It is a little singular that the first MS. examined after writing

the foregoing paragraphs was the following, in which it will be perceived Mr. Wilks adduces further evidence of the effects of the Diamond Jubilee.

THE R.H.S. FRUIT SHOW—£100 MISSING.

I feel inclined to head my letter, "Lost, Stolen, or Strayed, £100," for though not "lost" or "stolen" the £100 required for the autumn show of British grown fruit certainly seems to have "strayed" into the all-devouring capacity of the many-mouthed Diamond Jubilee projects. At any rate, it is missing.

You will remember that when the autumn fruit show, which had been held from time immemorial at the Crystal Palace, had fallen through, the R.H.S. offered to revive it as a show of British grown fruit, with prizes to the value of £250, on condition that those interested in the encouragement of fruit growing in this country would subscribe not less than £100 towards the unavoidable expenses.

For the last few years this £100 has been forthcoming, and magnificent shows have resulted, teaching thousands and thousands of spectators what fine fruit can be grown in Great Britain, and instructing very many planters as to the best varieties with which to stock their orchards and gardens.

Alas! this year of especial grace the £100 has strayed; it is not—or at least, is not as yet. Letter after letter reaches me to the effect—"Very sorry, but am so bled with Jubilee projects that I cannot help this year." In fact Peter is to be robbed in order to pay Paul.

May I be allowed to appeal to all interested in British fruit not to let our grand annual show fall through for lack of £100? Immediate help is wanted, as the schedule is all ready for issue—all ready with this one all-important exception.—W. WILKS, Sec. R.H.S., Vicar of Shirley, Croydon.

Perhaps Mr. Wilks may consider the advisability of inaugurating a Victoria Medallists' dinner. It seems to have leaked out that there are to be sixty of them (not dinners, but Victorians), and surely they could raise half the £100 or more.

GERMAN SHOWS THROUGH ENGLISH SPECTACLES.

BERLIN.

WHEN we get that Horticultural Hall on the Thames Embankment, with, presumably, gardens thrown in, we shall be in a position to work up our exhibitions in the same style and with the same effect as our German cousins do theirs. Until that happy time arrives we must grovel instead of soar. The great exhibition which took place in Berlin from the 28th April to the 9th May came as a sort of electric shock to one fresh from a Drill Hall meeting. Of course, it will be said that there is no fair comparison, the one being a special affair, and the other part of a yearly programme, and that is certainly so. Still, London is London, and Berlin is Berlin, and writing from the point of view of the general spectator, who ought to discriminate, but does not, London is unquestionably "in a fog."

To get an idea of the conditions of the German Show we must begin by taking a 2d. steamer from the Temple Pier down to Battersea Park. We must then proceed to provide the river front there with a series of handsome permanent exhibition buildings, interspersed with trees and shrubs (throwing in, in a merely casual way, a spacious and well patronised refreshment bar); then we are well on the way. Battersea Park in Berlin becomes Treptower Park, the Thames becomes the Spree. There are differences in the nursemaids, there are differences in the lady cyclists, there are differences in the noblemen who navigate the barges down the river; still, the parallel is plain enough, and to complete it we have only to include a few cheap steamers swaggering offensively up and down.

However, it might be well to begin at the beginning. Reaching the Park at Treptow from the Friedrichstrasse proved to be a very simple matter, thanks to the assistance of an amiable gentleman in the train, who, being asked for assistance, bowed gracefully out of the window at each station and inquired if the train were the right one. It was observable that although the gentleman lifted his hat freely to the porters they did not respond in kind, but gave very scant attention and very brief replies.

We met at the Chemiehalle, some 100 to 120 of us. There was an oration, delivered by a gentleman whose name was not grasped, and then an explanation of the judging arrangements, given by the excellent General Secretary, Dr. Wittmack. These preliminaries were as deliberate and sedate as subsequent proceedings proved to be. Each section was indicated, and then the Judges were told off in sets of three—such an array as speedily put to rest any fears of

overwork. Our first task was to find the classes, and in order to make sure we missed none we went steadily round the whole Exhibition several times over. There was one advantage of this plan, and that is, it enabled the Journal representative to get a good general idea of the character of the Exhibition. He is not going to report it in detail, as that would have no value or interest for British readers, but a few jottings may be of interest as giving an idea of the way in which the Germans grow and show plants.

The comparative fewness of Orchids was noticeable. There were none of the large groups that the early days of the Temple Show gave us. Possibly the number of wealthy Orchid lovers is not so great in Germany as in England. In the first large hall there was a fairly representative collection from Mr. J. C. Schmidt, but the specialities in it were not numerous. *Cypripedium Morganiae*, *C. Harrisianum superbum*, and *C. hirsutissimum* were good, and so were several *Cattleyas*, amongst them *C. Mendeli Souvenir de la Reine*, but they cannot by any stretch of imagination be described as novel in their interest. *Cypripedium Exul* in Mr. Brandt's collection was fresh, and *Mesospinidium vulcanicum* not an everyday affair.

There was a small contribution from England bearing the familiar name of Sander; not all Orchids, however, but the two new *Dracaenas Sanderiana* and *Godseffiana*, *Caladium albanense*, *Cypripedium Rothschildianum*, with a few other novelties.

There was no lack of general flowering plants. Three parts of the *Hydrangea hortensis* were blue, and this would suggest either that the soil of the growers is naturally well stiffened with iron, or that they artificially provide for a special public taste. Amongst the happy ideas in the way of simple grouping was a circle of *Boronia elatior* surrounded by the attractive yellow and white variegated plant *Ophiopogon jaburan aurea variegata*. The *Boronias* were free, loose, profusely flowered plants, about 18 inches high by 12 inches through, and very beautiful the whole arrangement looked. The principal hall was nearly full of *Roses*. There were abundance of pot standards, 4 to 5 feet high, and this type of plant appears to be in strong favour. They can hardly be called handsome, however, and it is a little odd that they can be in such demand as is indicated by the number shown. The bushes were mostly small plants, about 2 feet high, and one German gentleman shrugged his shoulders as he recalled a visit to the Crystal Palace in the days gone by.

Rhododendrons were one of the best features of the Show, and it is clear they are popular in the Fatherland. The varieties, too, are of the best. There was one magnificent trophy of them, 200 feet by 150, arranged on a sloping bank, as naturally as possible, with a waterfall in the centre. It was a triumph, and if we had something of the same sort to show we should think ourselves clever. It was pleasant to see a number of first-rate varieties of English origin amongst the collections of smaller plants. There were specimens by the hundred, about 18 inches high, in 6-inch pots, and they were exceedingly beautiful. Amongst them was the splendid white *Helene Schiffner*; a good carmine, named *Kaiser Wilhelm*; a crimson, called *Bernhard Lauterbach*; a blush, named *Comte de Gomer*; and a splendid crimson, called *L. L. Liebig*. These would strengthen any collection. The German florists are exceedingly strong, too, in *Pelargoniums* of the *Odier* section. Mr. Bürger of Halberstadt exhibited a large number of his own raising, some of which we ought to have. *Meta*, rose, with purple shade, very large; *Lina*, white, with crimson blotch; *Onkel Pitt*, rosy carmine, with dark blotch; *H. Kirchner*, rose, with dark blotch; and *Direktor Zinck*, rosy carmine, are all genuine good things. The raiser named has, it is said, given attention also to *Begonias*, and if he does as well with them as with *Pelargoniums* he is to be known.

Of *Cinerarias*, *Calceolarias*, and *Cyclamens* the following may be said:—The Germans are good with the first, weak with the second, and very strong indeed with the third. They have good strains of *Cyclamens*, and know how to make the best of them. Their plants are large, and throw up pecks of fine flowers well above the leaves. The *Cinerarias* are perhaps hardly so good in type as the best of ours, but they are very little behind, and the plants are very freely flowered. *Calceolarias* are far behind us. As regards general culture with florists' flowers of this class it is very much on a level with that in England. *Lilacs* are a strong point with the Germans. They may not originate, but they can make fine use of existing material. The beautiful semi-double *Michel Buchner*, as also *Léon Simon*, *Perle de Nancy*, and *Madame Lemoine*, were splendidly shown. There were large plants, and small all healthy and very full of bloom.

The fondness of the Germans for standards was evidenced again with the Fuchsias. Three parts of the plants were of that class. The most popular type appears to be a plant on a stem of 2 to 3 feet. We might not call them handsome in this country, our preference being for more natural material in the form of untrained bushes. But they are too well grown to be other than attractive. There is nothing particular to be said about varieties, but it might be remarked in passing that there is at least one thing in common between florists of the two countries. A question as to the meaning of the word "verbessert" drew the reply, "that is improved," and then a fat "ha, ha!" There have been recent jokes, it is said, in the German papers as to the "improvements" of the florists, but we regard that subject as too sacred for mirth. A group of plants of Fuchsia triphylla hybrida, a cross between triphylla and corymbiflora, received a great deal of attention and an honour from the Judges. The plants were only in bud unfortunately, but the foliage is handsome in a quiet reposeful way.

There is nothing to be said about hardy plants generally, which were sparse indeed as compared with our leading shows. The same with bulbs. There were a few Narcissi, but there is perhaps no German Barr or Engleheart; anyway, most of the varieties were old, old friends. Amaryllis (Hippeastrums) were fair rather than great. Ismene (Hymenocallis) calathina was well shown, and it is unquestionably a most useful spring blooming plant. There were giants amongst the Myrtles, of which marvellous examples were shown; but Crotons and Dracenas—indeed, foliage plants generally—were more noteworthy for health and cleanliness than size.

To sum up the main difference between a great German and English exhibition it is grace *versus* solidity. There are no blocks of huge specimen Azaleas such as Mr. Turner and others have exhibited; no fine bushes of Clematis like the noble plants with which Messrs. Richard Smith have delighted us; no large bush Roses like those of Mr. George Paul and others; no stately Caladiums of the type exhibited many times by Messrs. Laing. The vast bulk of the material was "stuff" of the market type, healthy, very freely flowered, admirably grown, but small. It might perhaps be thought that mere market plants would be altogether lost in the huge permanent buildings, each nearly double the size of the Drill Hall and far more lofty; but the Germans are too good artists for that. There was not a pillar but what was draped to a height of 12 feet or so, and the side walls were covered to the same height with a sort of arras, or tapestry of greenery. In the corners and at each end were either groups of Palms or sloping banks of large flowering and foliage plants. There was turf everywhere. The whole of the centre of each large building was covered with it, save where groups of plants stood. The floors, in fact, were turned into lawns, from which circles and triangles were cut, as it were, to admit of the plants.

There was no attempt whatever to keep classes together; on the contrary, there was every endeavour to keep them apart. One or two Judges seemed rather inclined to growl, but the vast majority accepted it in the most philosophic way, marching placidly from one place to another. Sometimes it was a little awkward. Imagine having one group at the Drill Hall, a second at the Hotel Windsor, and a third at the Army and Navy Stores, then you are fairly near getting an idea of the state of affairs. Whether the system is good or bad depends on the point of view taken. An English judge in a hurry would say it was as bad as bad could be; a visitor who simply wanted to admire a spectacle would pronounce it very good indeed. And as shows are presumably arranged less for the benefit of judges in a hurry than for pleasing the public there is perhaps no good ground for criticism.

It is pleasant to be able to vouch for the deliberative care with which German judges do their work. We were allowed a day, and we filled it out somehow. We gave tremendous reflection to everything. Nothing could have been more impressive than the nice adjustment of points. In the writer's section there were about fifteen classes. These were disposed of triumphantly in ten hours. Occasionally, it is true, we had a siesta, but that freshened our reflective faculties, and enabled us to attack our work with renewed energy. There was no indecent haste, no slipshod workmanship. We examined the plants from petal to root. There was something—this is said with all modesty—almost sublime in the profound conscientiousness with which every man of us discharged his judicial functions.

Over all there reigned an infinite good humour. The sense of our responsibilities did not weigh on our spirits as it might have

done under duller skies. There was sunshine on the dancing waters of the adjacent Spree, there was sunshine on the visages and in the hearts of every member of the great jury. The lunch was a festive gathering, not a solid swallowing exhibition. There was endless chatting, but very little speechifying, and that says enough. The most prominent orator was a Court official and distinguished amateur botanist, Mr. St. Paul Illaire, and he was brief and sparkling. Every person present was resolutely determined on two things—to do his duty, and to do it joyously.

HAMBURG.

By a coincidence that starts one "furiously thinking," the chief political and the chief maritime towns of Germany have a celebratory exhibition, not only in the same season, but starting in the same week. Fortunately for judges, writers, and such like, the two centres are sufficiently near each other to be reached by expresses in about four hours, consequently there is no difficulty in getting quickly from one to the other. At a pinch, the two great shows could be done in a day; but it is a pinch that no one with due regard for his own comfort would subject himself to. The Hamburg Exhibition is not a solitary show, lasting a few days only; it is a permanent exhibition, lasting the whole summer, and strengthened by special shows at certain intervals, just as was done at Earl's Court a few years ago. There is a difference, however, between Hamburg and Earl's Court—a difference of some significance, inasmuch as the cost of the affair has been subscribed in advance. There is talk in Hamburg of the Exhibition costing over £100,000, and yet the promoters maintain a cheerful demeanour. Perhaps if it all had to come back again in the shillings of a fickle public there would be less complacency.

To put matters in some preliminary order, the Exhibition is an international one of horticulture and horticultural products, opening on the first day of May, and closing at the end of September. The special shows are (1) May 1st to May 7th, principally for groups, specimen plants, novelties, and miscellaneous exhibits; (2) from May 30th to June 3rd, principally for Pelargoniums, floral work, and early vegetables; (3) July 2nd to 6th, Gloxinias, Roses, trees and shrubs (cut twigs), and floral work; (4) July 30th to August 3rd, tuberous Begonias, Carnations in pots, cut flowers, and fruit trees in pots; (5) plants generally, including groups, specimens, collections, novelties and market plants, floral work, and vegetables; (6) fruit. Thus there is provision for all classes. There will probably be sufficient in the permanent Exhibition to reward a visit at any time; but as visitors from England will naturally prefer to go when there is a special show the hint may be dropped that they are likely to do best for themselves by selecting No. 3 or No. 6.

There are many ways of getting to Hamburg, amongst which are the following:—(1) by Queenborough and Flushing (L. C. and D. Railway in London); (2) by Hook of Holland (Liverpool Street in London); (3) by express to Harwich (from Liverpool Street), and thence by General Steam Navigation Company's boat; (4) by boat direct from Grimsby. By way of variety the present writer tried the Hook of Holland route going, and the Hamburg-Harwich route returning, and was well satisfied with both. The Hook of Holland route means a short sea and a long railway journey; the General Steam Navigation Co.'s route means a good deal of sea and a very small modicum of train. It is largely a matter of taste which is the better. Both ways there is comfort and convenience, and the two companies work in friendly harmony. A horticulturist might enjoy a most pleasant holiday by running over to one or other of the shows. There are special tickets issued, the shows are very fine ones, and the town is full of interest. A sprinkling of visitors from England, more or less familiar in horticultural circles, foregathered at the opening show, amongst them being Mr. Ballantine, Mr. Geo. Gordon, Mr. J. Hudson, Mr. F. Sander and his sons, and Mr. W. P. Wright. One of these gentlemen made the following round, and recommends it to others:—Liverpool Street, Hook of Holland, Haarlem, Amsterdam, Berlin, Hamburg, Harwich, London.

The pleasantest part of the pleasant city of Hamburg is that surrounding the beautiful Alster, and here are situated a series of excellent hotels, such as the Hamburger Hof, Streit's, and the Belvedere, any of which may be chosen. It is a bare ten minutes' walk from any of them to the Exhibition, which is in the Heiligengeist Feld, or in plain English, Holy Ghost Fields. But as the average Briton likes to board something or other, it may be mentioned that he can, if it so please him, enter an electric tram-car, have a penny ride all round the town, and alight at the gates. He will have a novel experience if he does, for the cars are far ahead

of our home ones. The lighting and motor power are both communicated by electricity, the latter in a very ingenious way, from overhead wires. The prejudice against the latter in this country seems baseless. So far as could be judged, no particularly devastating results attend their use in Germany, and the car system is a very complete one, admirably worked.

In now referring to a few features of the show no attempt will be made to give detailed results of the competitions, which would be but poor reading out of Germany. As in the case of Berlin, a general survey will be made. It is too early to speak about the grounds; even the Tulips are not at their best yet, but they will be beautiful by-and-by. The provision for the special show consists of a long range of buildings on the right-hand side of the grounds, terminating in a splendid hall of great size and handsome construction. Altogether, the accommodation is equal to about six Drill Halls. There is not much tabling; the Germans do not appear to believe in that, but there is extensive provision of ground space in flats, mounds, recesses, and banks. The leading idea is spectacular effect. The exhibition is to please and educate the public, but first of all to please them; and the German gardeners are real artists. They group their plants boldly, blend their colours cunningly. They are equal to very striking and vigorous effects; they are also equal to exceedingly quiet and subdued ones, of which more later.

By way of tickling the palate and preparing it for the good things to follow, the first building, the one nearest the main entrance, is given up to groups and blocks of plants, very skilfully arranged. Take one side. There was a central group, oval in shape, of Anthuriums, giving a rich block of colour. To right and left of it were beds of Amaryllis in various colours; outside of these beds of Carnations, different sorts, the whole flanked by a beautiful bank of Primula Sieboldi. In every case the plants were in pots plunged to the rims. The Primulas came from Messrs. Goos and Koenemann, and were a splendid collection, embracing many beautiful sorts, but there was a slight confusion of nomenclature, which a knowledge of English would have averted. For example, a block of a fine white was cheerfully disguised under the name of Ruby Queen. Mrs. Ryder, Peach Blossom, Miss Nellie Barnard, Maiden's Blush, and Arthur were all very conspicuous amongst the varieties. The same building contained two other exceedingly attractive features—namely, fine groups of Roses and Lilacs, also plunged. The Lilacs were particularly fine, and we do not often see them like it in England. There were large bushes, small bushes, and standards, all full of bloom, the sorts including such excellent ones as Charles X., Madame Lemoine, Léon Simon, and Michel Buchner. They came from Mr. Harms of Hamburg.

As at Berlin, there were beautiful collections of dwarf pot Rhododendrons, the plants about a foot high and through, and full of bloom. Many people would regard these as even more attractive than the quarter specimen Azaleas which are so popular. There is a great range of colour amongst them, and they are in every way pleasing and effective. In one of the groups in this building were some beautiful objects in the form of Prunus triloba, in 6 and 7-inch pots, the plants from 1 to 2 feet high, and smothered in their soft pink flowers. A charming effect had been produced in one part by plunging a collection of the lovely little Saintpaulia ionantha, which with its soft heart-shaped leaves and violet flowers presented as pretty a picture in the turf as a clump of Violets in an English hedgerow.

The Orchid section was entirely dominated by a contribution from Baron Schröder. There is no wish to disparage the other exhibits, several of which were good, and all admirably arranged; but in horticultural interest the Baron's group was paramount. It contained a large number of good and interesting things, amongst them being Luddemannia Lehmanni; Cattleyas speciosissima and Parthenia; Lælia Latona; Cypripedium bellatulum album, Gertrude Hoffington (this striking chocolate flower was a cynosure), Clonius, Mastersianum, Rothschildianum, nitidissimum, and Dayanum; Odontoglossum crispum Rex, Wilckeanum, Queen Empress, and Cervantesi roseum; Maxillaria Sanderiana; Lælio-Cattleya Marriottiana; Vanda Gottschalckei, and Masdevallia Benedicti. It was very appropriate that so splendid an exhibit should come from a distinguished Anglo-German like the Baron. Messrs. Sander had a mixed group, chiefly composed of Orchids and new plants. In the centre was a glass case, enshrining a treasure in the form of the ruby Cypripedium Oakes Ames (Rothschildianum × ciliare). Amongst other plants were Cattleya Schröderæ and C. S. cœrulescens, Asparagus albanensis, Cyrtanthus obliquus major, Calla Elliottiana, Araucaria excelsa (Sander's variety), Sander's

Variegated Canna, Dracænas Godseffiana and Sanderiana, Caladium albanense, Renanthera Imschootiana, Licuala grandis, and Heliconia illustris rubricaulis. Special honours were awarded.

France had a notable contribution in the shape of a group of Nidulariums and Vriesias, which came from the nursery of Messrs. Duval et Fils, Versailles. They comprised Nidulariums rutilans and striatum, Vriesias Eros, fenestralis, splendens, Kittchiana, Duvali major, Duereti, and Manoti. They were all in flower, and made a very singular, interesting, and attractive group. Mr. Theodore Reimers also had a collection of much interest, comprising a number of Bertolonias, Nidulariums, Erechtocnema Sanderiana, and a magnificent specimen of Medinilla magnifica. Mr. F. A. Haage, jun., of Erfurt sent a large number of Cactuses in thumb pots, which would arouse admiration from specialists if not from the general public. The one notable fruit exhibit came from France (M. Nohle). It was composed of splendid Peaches, Cherries, Strawberries, and Raspberries. The jury rightly gave a special prize.

More might be said about various exhibits, but having by this time found his way into the great hall, the writer found so much to admire that small matters were passed. Imagine an Albert Hall-like building, of immense height, supported by lofty pillars, and of the most ornate construction. Imagine the interior to consist of an orchestral-like elevation at each end, a long, broad terrace on each side, and a central floor surrounding a small lake, fed by winding streams. Finish by imagining the whole place packed with plants, not lumped together, but disposed in the most artistic way, and you have a faint idea of what cannot possibly be described. The whole thing was a work of supreme art, of plant and flower grouping on the most magnificent scale. There was a general effect which struck every visitor with the liveliest admiration, and there were numerous individual effects of the most beautiful nature.

The raised ground at the upper end was covered with groups of Clivias and Hydrangeas, flanked by Palms and Tree Ferns. Sloping from it to the floor level was a huge bank of Azaleas and Rhododendrons, all fine specimen plants, densely flowered. These were arranged in blocks of colour. In a sunny recess amongst rocks, on which the sun fell obliquely, was a glistening group of Azalea mollis, and beneath a large skylight, through which a softened light fell, was a semicircular group of Lilacs, Gueldres Roses, and Prunus triloba. This was the triumph of the whole exhibition. The white and lavender tints of the Lilacs, the greenish white of the Viburnum, and the soft flesh pink of the Prunus blended in the most chaste and delicate way. In other parts of the hall were huge groups of flowering and foliage plants. On the ground floor an area of perhaps 200 feet by 150 was given up to groups of different plants, surrounding the water already referred to, and which was dotted with Arums. There were groups of Cinerarias, of Azaleas, of Clivias, of Oranges, of Gloxinias, of Anthuriums, of Hyacinths, of Vriesias, of Roses, of Camellias, of Genistas, of Dracæna Lindenii, and of Maidenhair Ferns, and in one corner was a block of Lilies of the Valley, snugly shaded by the leafage of huge Palms. At every turn some new feature met the eye. In short it was, as before said, a triumph.

Amongst the numerous officials conspicuous good work was done by Prof. Zacharias (the general Superintendent), Herr Jürgens, Dr. Herz (the foreign Secretary), Herr Siebert of Frankfurt, and Herr Lauche of Eisgrub, Austria. There was the usual opening ceremony, which took place on the morning of May 1st, and the usual banquet, which was held on the Monday evening, May 3rd. The *Journal* representative boarded the swift *Peregrine* en route for England before the festivities began, but he carried away an impression that the Germans had set themselves a great task in this exhibition, and that they had risen to the occasion like men.

A SIMPLE INDOOR ADORNMENT.—Recently a fine example of what can be done in the way of indoor decoration by a simple arrangement came under my notice, and as anybody can adopt the expedient in an ordinary sitting room, a few observations may be interesting to some readers. About two years ago a seed of the common Horse Chestnut was inserted in a pot along with an established plant of Asparagus tenuissimus, and the result is now a stately little tree, rising above its more aristocratic companion. The combination perhaps is not quite harmonious, but nevertheless is pleasing and suggestive. The Chestnut was picked from a noble tree growing at Versailles—a name which carries the memory back to war's alarms and devastation, and the overthrow of Imperial France. If trees could see and speak, as well as "think," like Mr. Thomson's Vine, what a story the parent of this sprightly and ambitious little foreigner could tell!—J. M.

THE SCHOOL GARDEN.

EVERY country school should have its adjacent garden, to be cultivated by the boys themselves, under proper supervision. It should be regarded as an indispensable aid to technical instruction in the village; and not only this, it would be an instrument of education of great value and importance. At best the school life of the farm labourer's son is but of brief duration; therefore the time at disposal ought to be utilised to the best advantage, and, as much as possible, having direct bearing on the child's future prospects. This we know quite well is not the case with regard to village schools in the United Kingdom.

As usual we are forestalled by several of the most powerful of our neighbours on the Continent. Switzerland is to the fore; there are training colleges for the preparation and equipment of teachers for the schools of the Canton. At one of these colleges, near Lake Constance, there is a large farm cultivated by the students under skilled instructors. The farm has orchards allotted to it, and there they learn on the land itself, not merely in the lecture room, the science of farming and gardening. The students in the Swiss college are prepared for the mastership of rural schools, where they will associate with the peasant farmers and teach their children.

France has for many years had school gardens; Germany years ago saw the necessity of such instruction, and provided for it liberally; Sweden has over 2000 school gardens, and so long ago as May, 1869, the Austrian Public School Law says:—"In every school a gymnastic ground, a garden for the teacher, and a place for the encouragement of agricultural experiments are to be created." "And to see that in the country schools school gardens shall be provided for corresponding agricultural instruction in all that relates to the soil, and that the teacher shall make himself skilful in such instruction." Moreover, "Instruction in natural history is indispensable to suitably established school gardens."

One can imagine, after thinking over these wise provisions, what an immense impetus to gardening and allotment cultivation would have been given had our Education Department followed such an example. That "per-centage machine" of Mr. Robert Lowe resulted in causing a quarter of a century's delay in the progress of education.

Forty years ago there were gardens for the use and instruction of boys attending country schools in England. Those of Lords Hatherton, Lyttleton, and Ellesmere, with the schools of Finchley and Highgate, were highly commended by Her Majesty's Inspectors. There were Government grants in support of this teaching. For various reasons, however, the schools failed to secure the sympathy and co-operation of the parents. One can scarcely wonder at this. The labour was, in a way, compulsory, in some instances excessive, and in few cases did any systematic teaching accompany it. The system was entirely wrong. Sometimes a small remuneration was provided—perhaps a halfpenny an hour; rent was charged, and payment for the use of implements. Moreover, the work was done in common, similar to that of the industrial and workhouse school, and it lacked the feeling of responsibility and ownership of produce which alone gives zest and interest to the employment.

Perhaps, however, Mr. Lowe's scheme of "payment for results" had most to do with the gradual failure of school gardens. Where a considerable portion of the teacher's salary depended upon the per-centage of so-called "passes," not only his income was in peril, but his credit and situation were at stake, and so interest in the "school garden" rapidly declined.

It is a gratifying circumstance that the common sense of the rural districts is now aroused, and County Councils almost all over the country, as initiated in Surrey, are encouraging technical instruction in gardening, also elementary agriculture. Having some knowledge of the subject from both sides, I will venture to submit a word of warning. For years the South Kensington Department have been preparing—save the mark—and sending forth so-called "lecturers" on "elementary agriculture," many of them assistant masters in Board and Voluntary schools. After listening to a course of lectures and reading certain text books they have, from a paper examination, gained a certificate and forthwith began lectures themselves, and earned "Government grants" thereon. Some of these persons I have known, and doubtless there are many others, who had no practical knowledge whatever of the subjects they professed to teach. Books, if good, are useful; and lecturers, if taught in the school of practice, may do good service, but without actual teaching on the soil itself, under competent supervision, the results may be next to worthless.

And now I revert for a moment to the reports of some of the ablest of H.M.'s School Inspectors. "The practical knowledge acquired," said the Rev. F. Watkins, "by these young gardeners will be useful and interesting to them in whatever situation they may be placed. The cultivation and refinement of their tastes by more observant acquaintance with the wonderful and beautiful

works of Nature, and above all the healthy and cheerful occupation of time, will by God's blessing save them from many a temptation and many a trial in their after life. I believe it is hardly possible to overrate the moral or economical value of school gardens in manufacturing quite as much as rural districts of our country." I venture to quote a second extract from another of H.M.'s most experienced inspectors, The Rev. J. D. Stewart—"Occupation in gardening teaches the use of common tools and implements; it affords unlimited scope for collateral information, and makes working men handy and fertile in resources; also puts within their reach the means of adding to the comfort and decency of everyday life in their homes. The wider issues with which this branch of education connects itself—the preparation of future colonists—is of obvious importance."

This subject of school gardens, owing to the rapid extension of the allotment system and peasant proprietorship, is of growing importance. An essential consideration, however, seems to have been entirely overlooked. It appears to be taken for granted that the farm labourer's son may dispense entirely with such technical instruction in his calling as is considered essential in most other callings, in which both hand and head are concerned; and that the lad acquires sufficient knowledge of the implements and materials of the garden or farm, and the several operations pertaining to the tillage of the soil from the mere circumstance of having been brought up on the land, and set to work on it from his early boyhood.

School gardening, under a sensible *régime* and systematically cultivated, also by men who know the actual value of the work and crops, has a high mission—that of lifting elementary education to a higher level, of keeping many of the best labourers on the land, of improving the social condition of rural communities, of adding materially to the food supply of the country, of investing the farm labourer's work with greater interest and significance, thereby enabling him to increase his income, and add to the comfort and attractiveness of his home.

It is not for a moment assumed that "scientific agriculture," or even much gardening can be taught on a few poles of land, under the instruction and guidance of a schoolmaster. It is not impossible, however, as the writer well knows, to awaken an intelligent interest in the matter, to show how much can be done towards convincing the young labourer of the latent energies of the soil that may be called into action by skilful cultivation, to call out the powers of intelligent observation and reflection, and to implant such a love for and appreciation of the Book of Nature as shall be of inestimable value to him in after life, and invest his ordinary occupation with fresh importance and a new and abiding interest.—HERGA.

RHODODENDRONS.

IF a census were taken of the most popular hardy evergreen shrubs it is more than probable that Rhododendrons would come out very nearly at the top, for they are beautiful alike both in and out of flower. When in full beauty they are unsurpassed by any flowering evergreen, and when out of flower their shapeliness and bright green foliage render them fitting specimens for lawns or for massing in beds. They are at home in any position, whether in the neighbourhood of a town or in the pure air of the country. Under trees or in the open, in sheltered nooks or in exposed situations they are alike suitable, and thrive if their simple requirements are attended to. They, however, do not like soils in which lime and chalk prevail, and in such instances special preparations must be made for them. They are worthy of all this, and of much more care than is bestowed on them in many gardens.

Rhododendrons will grow under forest trees, but ought to be planted at the same time, for after trees become large and the soil crammed with roots there is great difficulty in establishing them. Before they have a chance of taking possession of the soil by their roots they suffer from drought, and often die the season after planting. If the growing trees have been well thinned, and large stations are prepared by digging as deeply as the soil will allow, incorporating with it leaf mould, manure, loam, or even the refuse of the potting shed, or a quantity of the whole mixed together before planting, success can be insured, especially if the shrubs are well watered for the first season until the roots have got well hold of the soil. In the front of plantations of forest trees there is less difficulty in establishing them. When once well rooted in woods and plantations in which the leaves of deciduous trees are allowed to remain, they will need little attention. When both are planted together and the trees duly thinned they grow rapidly if the soil is of a fertile nature or rendered so by preparation. For undergrowth, as well as for the margins of woodland walks and drives, no plant equals *R. ponticum* in my opinion.

In whatever position they may be planted it is a great mistake

to prepare a small hole and render the soil immediately surrounding the roots fertile to give them a start. Under this treatment the plants grow well for a few years only, until the prepared soil fails to supply them with the requisite amount of food. They decrease in health and vigour in proportion as the soil beyond the station made for them is rich or poor. In naturally fertile soils they flourish without further trouble, but in the majority they become thin and bare, while in others they linger between life and death, only to succumb the first time their energies are severely taxed by a long spell of drought, cutting winds, or severe frost. They frequently succeed better in woods when left to Nature for their supply of food than they do in borders or dressed portions of the pleasure grounds. It is in these positions that Rhododendrons, instead of growing luxuriantly, become bare from exhaustion. Every particle of material that would provide them with food is brushed away for the sake of appearance. This would not be objected to if the shrubs were supplied with sustenance to withstand the adverse circumstances to which they are often subjected.

I have seen these shrubs grow with wonderful vigour in 6 inches depth of heavy soil resting on a bed of clay, and equally well in light sandy soils, also on peaty grounds when left to Nature. In each instance, as is natural to the Rhododendron, they rooted closely beneath the surface, and their own leaves, and those that were drifted under them, soon induced a mass of fibres, and the fallen leaves protected the fine hair-like roots from destruction by drought. In gardens their food is removed, and annually numbers of the surface roots are cut off by the too general practice of digging amongst them. In summer they suffer by drought, and with such treatment it is no wonder they look thin, poor, and unsightly.

To insure success digging must never be done about the roots; it is only to give a neat appearance, and to prevent leaves that have drifted in from being blown out and carried on to the lawn or surrounding places. This is to save labour, which can be accomplished by another method, if not quite so quickly, with benefit to the shrubs. The loose leaves can be brushed or raked out unless the necessary material is at hand for top-dressing them as the work of cleaning proceeds. Refuse from the garden, such as leaves, the mowings of lawns, and the edgings of walks, make capital material for top-dressing. The refuse from the potting shed, the surface soil removed from vineries, or Peach houses—in fact, all soils after they are useless for indoor work—are excellent for the purpose. Often old hotbeds are available, and a few loads of soil after the most fibry portion has been removed for potting purposes can be purchased in the neighbourhood of towns for covering leaves or material that might blow about.

In large gardens the quantity of refuse from the various departments amounts to a large heap in twelve months, which if thrown together and turned will be found ample for top-dressing many clumps and single specimens of Rhododendrons. They root freely into leaves or garden refuse, which generally consists of a quantity of rich fertilising material. On light soils I prefer a dressing of cow manure with a thin sprinkling of soil on the surface, because it retains moisture much longer than other refuse.

The best time for top-dressing is during the winter or early spring, while the roots are moist, as then the material applied will keep them in that condition throughout the summer. Instead of the shrubs being injured, as is usual during dry weather by the destruction of the surface roots, it will be found on examination that the old top layer of mould is a mass of white fibres that are taking possession of the new soil. If the top-dressing is about 4 inches thick it will last at least three years before it need be repeated.

Not only do Rhododendrons grow with greater vigour and retain a fine, dark, glossy appearance by top-dressing periodically, but they brave cutting winds in exposed situations without in many cases receiving the slightest injury. In exceptional cases if they are browned they quickly recover before the season is over. Plants in poor soil subjected to the evil conditions pointed out are certain to be cut very much, and seldom recover; in fact they always present a thin, naked appearance.

It is not wise to cut back Rhododendrons that are in an exhausted condition. They should be allowed to grow one season after top-dressing, and then may be cut back during the early spring months. It is a mistake to delay pruning them until they have flowered, for they are then late before they start their growth, which is not well ripened before the winter, and in severe weather the shoots are often killed. With plants in a partially exhausted condition the flowers must be removed directly they fade, and not be allowed to remain and ripen their seeds. This is necessary in any case, both for appearance and the well being of the shrubs.

Planting in exposed positions should be done during September. In sheltered places Rhododendrons may be planted at almost any season of the year, provided the soil is moist; if not, considerable labour is occasioned in watering.—A. N.



ODONTOGLOSSUM CRISPUM LUCIANI.

THE additions to this beautiful class of Orchids continue fairly numerous, coming from all sources, and there are now scores of varieties to which distinctive names have been attached that have been honoured by the Royal Horticultural Society. One of the latest is O. c. Luciani, of which we give an illustration (fig. 78). This was shown at the Drill Hall on March 23rd by Mons. Lucien Linden, and received a first-class certificate. The form of the

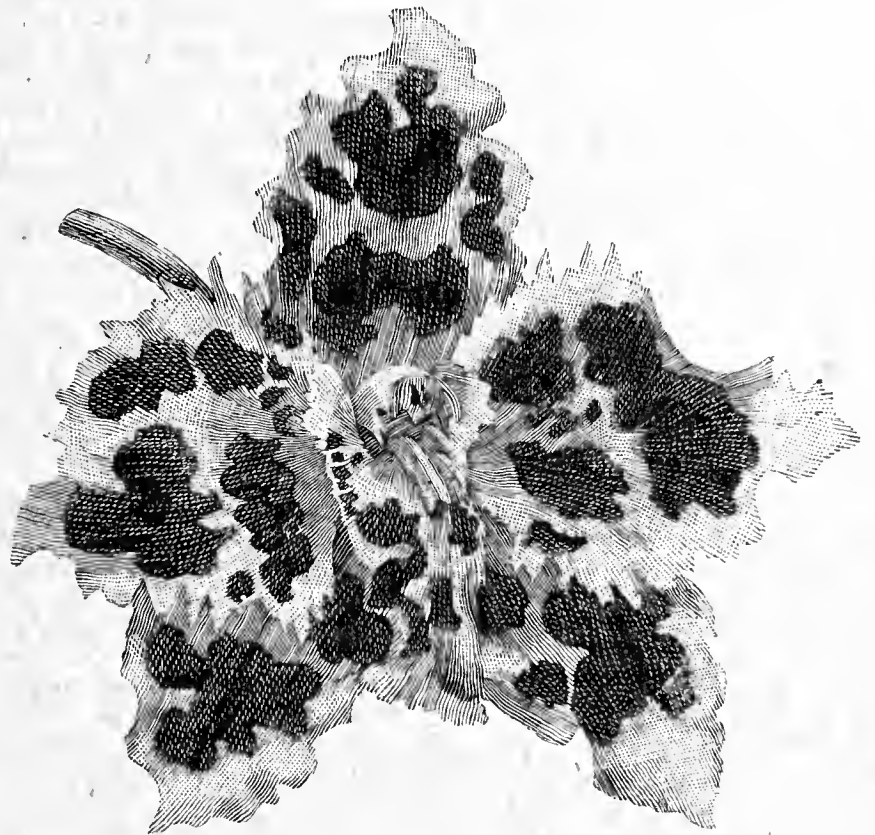


FIG. 78.—ODONTOGLOSSUM CRISPUM LUCIANI.

flower is superb, while the substance is splendid. The ground colour is white suffused with rose, with abundance of large chocolate blotches.

INSECT INVASION.

"I WANT to know what really *will* kill insects? My garden is invaded every year, do what I will. Can you give a good article to help me in my difficulty?" Such is the appeal of a correspondent who seems to write almost in tones of despair. The invasion we suspect is the natural cause of repressive measures not being taken soon enough. Let our friend read and digest the following injunctions:—

Gardeners and cultivators of plants, trees, and crops generally have many enemies to combat. Watch must ever be kept to prevent some of them stealing a march and taking a firm position from which they cannot be dislodged without injury to the possessions on which they have seized. Insects of various forms start into life with the same regularity that leaves unfold in the spring, and those insects fight for existence with a determination that often leaves them victors.

The increase of insects leads to the ruin of plants and crops, disquietude of minds, and the emptying of purses. The waste is enormous, and if it were possible to estimate the amount of damage done, with the outlay incurred in the general warfare against the enemy, it would be startling in its immensity. Undoubtedly one of the most important duties of the gardener is to mitigate, so far as it lies in his power to do so, the great evil wrought through insect agency, and it is certainly in the interest of owners of gardens to give all the assistance they can in the furtherance of that object.

There is no greater mistake made in gardening, and unfortunately few more common, than to lightly ignore the presence of one or two insects. It is no more safe or prudent to do so than to pay small regard to the outbreak of a fire in a warehouse of valuable combustibles. The first spark, if seen, may be stamped out

easily, but hesitation is fatal. It is the same in respect to insects. Let the first arrivals remain undisturbed, on the ground that such a few cannot do much harm, and it is "not worth while wasting tobacco or other insecticides on them," and injury if not ruin to the plants or crops will be inevitable. The greatest calamities have followed from underrating the strength of the enemy, and permitting the aggregation of units, till they grow into a mighty force. This is precisely what is done and permitted yearly in greenhouses and gardens all over the land. The first few aphides are weak and easily subdued, but allow them a few days' freedom, and they will entrench themselves so firmly and increase with such rapidity as to become a formidable foe.

To allow insects to multiply into a devastating swarm is both costly and cruel. Costly because the deplorable results in half-formed Vines, fruit trees and plants represent a great waste of wealth; and because a far greater outlay must be incurred in insecticides and labour in applying them to prevent total ruin, that originally would have insured a remunerative return in the realisation of healthy plants and profitable crops. It is cruel to even passively encourage the increase of insects, and then, as must be the case, engage day by day in the miserable work of carnage, for it cannot be otherwise designated. It is cruel to the plants and trees also, in having their life blood drained away by the enemy that has been suffered to infest them, and which might have been prevented if the requisite means were provided and promptly applied. The owners of gardens are responsible for providing the means, the managers for their application.

Insects have often gained the mastery over gardeners through the mistaken policy of waiting till the plants and trees have been seriously infested before even "ordering" insecticides for their extirpation. Such delay on the part of those owners of gardens who personally order what is needed is a serious mistake; in the case of gardeners who can supply themselves with every requisite it is inexcusable. A shilling spent in insecticides early in the season, and the powder or solution applied when the first insect is seen, or, what is better, before, as a preventive, will effect the desired purpose far better than can be accomplished by an expenditure of 20s. after the shoots of trees and plants are crowded with aphides, which, further, by puncturing the leaves, cause them to curl over and effectually protect the enemy that is depriving them of life.

The rapidity with which plant lice multiply is marvellous, and perhaps not sufficiently recognised. According to the calculations of one great scientist five generations proceeding from one mother produced 5,904,900,000 in a season. It is true there are natural enemies for checking the increase, as ladybirds and ichneumon flies, in nature, but they are rarely present, and never in sufficient numbers early in the year where cultivation is practised to a large extent under artificial conditions. The natural enemies of insects must never be relied on for destroying the latter, but other agencies should be resorted to for preventing the appearance of the pests, or at least be applied with promptitude directly the first insect is seen.

Waiting till the young growths of trees and plants are much infested with insects before applying remedies is placing the latter at a great disadvantage, and is often unjust to the manufacturers of insect-destroying compounds. Used in time, a moderate strength suffices for the extirpation of plant pests, and leaves the plants unharmed; but when the insects cluster on each other in layers, and so affix themselves as to make their prey their shelter, much stronger and repeated applications are called for; and as these cannot destroy the insects they do not reach, and the exhausted foliage cannot withstand the strong applications, what has been applied is not only pronounced useless but dangerous. Nothing can be more unfair. The fault is too near home to be admitted perhaps, but it is there nevertheless, and not with the insecticides, for if those that have been found safe and effectual by experienced cultivators, are used in strict accordance with the maker's instructions, and especially used in good time, before insects abound, they will answer the purpose for which they were intended. This latter condition is of far greater importance than the choice of any particular preparation. Some persons find one kind answer their purpose, some another; and it is a question if there is one in the market that is not safe and good when fairly applied.

Greenhouse plants innumerable; Calceolarias, Cinerarias, Pelargoniums, and others; also Roses in and out of doors; Peaches and other trees on walls and under glass; Vines, Cucumbers, and Melons, are crippled in growth, seriously injured, and not infrequently completely spoiled by aphides, thrips, or scale in their several forms that might with ease be kept clean. The path of safety lies in preventing the appearance of insects. Waiting for their multiplication in myriads before attacking them amounts to giving the victory to the enemy.—W.

PRECEPT AND PRACTICE.

(Continued from page 309.)

PICTURESQUE GARDENING.

WHILST not requiring any great feats of engineering there is ample scope for pleasing expressions of taste with utility in the greater freedom afforded to the head, hand, and eye in path designing. That there should be no crude union visible with the classical outline of formal design and picturesque freedom is evident. Good taste will discover the happy *via media* to insert the necessary semi-tones into our harmony. Its extent may, according to circumstances, be anything from a few yards to a mile in length, but it is in any case the connecting link, requiring more care in fashioning than will ever be apparent afterwards if the junction is smoothly effected. Granted that such is the case there is no startling contrast to court criticism, as our path carries us into the kingdom of picturesque gardening.

Wild or semi-wild gardening, pregnant with possibilities, is, I believe, capable of redeeming the character of the gardener, in some measure impugned by long confinement under the manacled fashion of formality. The latter we will not condemn if the former is not ignored. It has, in fact, as I have previously endeavoured to show, a distinct right of being; but practically excluded as many have been from liberty in this direction, it is not a matter for surprise to find a certain amount of stiffness cramping the hand and clinging to ideas born of more despotic influences.

This phase of gardening is, I think we may justly say, but in its infancy, notwithstanding some evidence to be found of our forefathers' acquaintance with it and those excellent examples under development, but there are sound and sufficient reasons for the inference that it will be of rapid growth, and form the most pleasing feature of gardening in the future.

Returning to our path, which is probably the simplest example of that subject, we need never lose sight of its primary purpose—viz., that however unobtrusive it may be, it is for use in all seasons, and practically for all weathers. It now brings us to a complex state of things, satisfactory and unsatisfactory, farther reaching, indeed, than this phase of our subject. One instance of a common error will convey the meaning, and one is vividly presented to me probably owing to its being in one way the most charming walk I have seen. Evergreens, flowering shrubs, with occasional specimens of our most handsome Coniferæ, might have afforded interest and beauty at every turn; but, alas! that fatal error of crowding, with constant mutilation to keep the path open, spoiled the picture. The direct source of such mistakes is, I believe, an insatiable desire for instantaneous effect. It is pawning the future to supply the present, and although the knowledge of such things must be patent to the veriest tyro in planting, the wisdom of acting upon it is ignored. Such at least appears to be the case when this near-sighted policy is in so many places persistently pursued.

We do not, unless we wish to return to the old Dutch style of gardening, desire to walk between evergreen walls. Dutch gardening is handsome in its way, but there is no mongrel connection between it and our subject to bear the burden of our sins when flowering shrubs, trees, or specimen evergreens are shorn of their characteristic features. The question might here be opened up of rectifying these errors, which in some instances, and under some circumstances, it is, of course, possible to do, but I would rather impress upon embryo planters the desirability of avoiding them.

What possibilities are now opening up for semi-wild gardening, this most pleasing of all gardening delights. Here we want the broadest idea, the freest of free lines. As our path carries us from peep to peep there is something to satisfy, to soothe, or to excite at every turn. Sheltered nooks, where a thousand Daffodils nod in the March winds; deep bays, where a dozen of Berberis Darwini, shrubby Spiræas, or countless things of beauty of form, or flower, or foliage, may be effectively represented. Endless variety, boundless freedom, yet all subordinate to an intelligent design—a design rather felt than seen. Failing this we are like those "whose incoherent style, like sick men's dreams, varies all shapes, and mixes all extremes." Even in those places where this subject has, one may say, been but approached; so many opportunities are created by the initial stage for its development, and one may wander for so many hours with the limit of as many acres feeling that the pleasures of gardening are infinite, its teachings endless, and its works always capable of extension in this direction as time and circumstances permit.

Nature is modest—for our purpose, modest to a fault—often hiding some charming features under the veil of indigenous vegetation. I have seen some beautiful bits of natural rockwork revealed by a little labour in clearing away the rank growth of Nettles, Brambles, and other savage wildlings; and in some places the removal of a few inches of surface soil has been the means to

the end. All such things pave the way to introduce suitable Alpine flora, not to again hide but to adorn. Take, for instance, that unsightly object, a disused quarry, not rarely used as a receptacle for rubbish. Some that I have seen, if transformed according to their capability, would fill a number of the *Journal* in detailing their history.

No hard and fast lines can be laid down to guide young students in the kingdom of picturesque gardening. Every spot, sphere, or locality where the gardener rules (or serves) has its individual character, and requires its own special study and adaptive elaboration, which in many cases will be more happily expounded by manifesting Nature than by reconstruction. Indeed, where the latter is felt to be the sole predominating influence over a gardener's mind it will often be, as it often is, an impassable barrier to his advancing in this direction.

Young men will find, as I have found, that ambitious schemes, generally involving considerable expense of force, material, and money, are received with distrust and suspicion, although this might be reversed if emanating from an eminent landscape gardener. We cannot afford in our desire for freedom to run full tilt at the barrier, but proceeding in a gently insinuating manner we may win our way into the kingdom of picturesque gardening even by such simple measures as the offering of a few bulbs, spare hardy plants, or what not. Now is the time to sow the seeds of observation over the whole ground of the subject, and doubt not but that such fruits will be ultimately reaped, that you will then endorse the opinion I have formed relative to some grievances concerning it—viz., "Our remedies oft in ourselves do lie which we ascribe to Heaven."—AN OLD BOY.

(To be continued.)

CULTURE OF ACHIMENES.

FLOWERS "all the year round" must be provided in greenhouses and conservatories, or the structures fail in the purpose for which they were erected. Perhaps the spring and early summer, or from the present time till July, is the period when such structures are in their zenith of beauty; for besides forced flowers, some of the finest genera of plants are in "fullest natural beauty" at the season named. But these families of plants—Cyclamens, Cinerarias, Calceolarias, and Pelargoniums—must have their successors, and the more distinct these are in habit and colour from the flowers blooming in the open air the more effective will they be when arranged in the houses.

Achimenes are thoroughly dissimilar from all outdoor-flowering plants in habit and the majority also in the colours of the flowers. The plants are, farther, of easy culture, provided they can, especially in the early stages of growth, be afforded artificial heat. Many valuable additions have recently been made to this handsome genus of plants, and no garden of importance can be considered completely furnished with summer decorative plants which does not contain a collection of Achimenes.

Where tubers are plentiful the work of producing fine pots, pans, or baskets of Achimenes is comparatively easy, for the tubers can be planted sufficiently close together that without any, or very little, stopping of the plants fine masses of growth and flowers can be obtained; but where tubers are scarce, as, for instance, in purchasing new sorts, greater cultural care is required to produce plants of an effective size the first season. Yet with even a limited number of tubers good plants may be perfected, as I will proceed to show.

Some years ago I ordered two dozen pots of Achimenes, which arrived during the first week of May. They were in 3-inch pots, each pot containing three plants about half an inch high. With this small beginning I determined to make as good an ending as possible, but did not anticipate the large results that followed. The tiny plants were growing in peat, and were placed on a shelf in the Cucumber house. They were carefully watered and syringed, and were slightly shaded in bright weather. When 3 inches high their points were taken out, and shortly, instead of having three shoots in each pot, I had in the case of some sorts six, and in others nine shoots. When these had pushed half an inch the plants were transferred into 5-inch pots in a mixture of two-thirds of peat and one-third of old Mushroom-bed manure, with a free admixture of sand and lumps of charcoal. After becoming established in these pots the plants were again stopped, and the shoots increased in number from fifteen to twenty-seven in each pot, according to the sorts, some breaking three eyes and others two. The plants with careful attention grew rapidly and were pinched a third time, and some of them produced as many as a hundred shoots. These were trained thinly out from the first, so that each grew sturdily. The plants were eventually shifted into 8-inch pots, and were afforded a compost of loam, leaf mould, old Mushroom-bed manure, and bruised charcoal in equal parts.

By the end of June the plants were too large for the shelf in the Cucumber house, and were moved to cold frames—that is, to frames having no artificial heat. A "cold" frame at that period is, however, really a warm stove if carefully ventilated and the sun heat conserved. On chilly nights the glass was covered for a time, and ventilation was as carefully attended to as for a house of Vines or Melons in early spring. The plants were regularly sprinkled, also slightly shaded and kept as

close as possible, provided the temperature did not exceed 85°. The ashes on which the pots were placed were also kept moist, and especially in the daytime when the sun was powerful. The frames were closed early each afternoon. Under this warm-frame treatment the growth was more vigorous than in the Cucumber house, and some of the plants were 3½ feet in diameter in the autumn, and almost complete balls of flowers, the weaker-growing kinds being proportionately small, yet equally satisfactory. They were greatly admired by all who saw them, and few could believe that from three tiny tubers potted in spring such rich masses of fine flowers could be produced in the autumn.

The secret of my success in growing these plants may be expressed in two words—unremitting attention. I have grown Achimenes for twenty seasons, and have had unlimited supplies of tubers, but I have never had such fine masses as from the first small beginning alluded to. Tubers, soil, means, conveniences cannot compensate for anxious, solicitous personal care in the cultivation of these or any other family of plants. Those cultivators who succeed the best do not simply give orders and leave someone else to attend to the plants; and it was by simply working harder, paying closer and more thoughtful attention than usual to my small but precious stock of Achimenes, that they increased to such large dimensions.

When an article is plentiful it appears to lose value, and does not receive that care to which its intrinsic merits entitle it. When we have plenty of Achimenes tubers we are apt to "take things easy," feeling a sort of self-satisfied consciousness that "that crop is at any rate safe." But we forget that it is on us as the cultivators, and not on the numbers of the plants, that success depends. We have plenty of tubers and we use them freely, sowing them almost like sowing seeds. We know that Achimenes start well in peat, therefore peat is used; but although the plants start well in peat they do not always finish well in it, and hence it is that failures are common when tubers are plentiful—they are lavishly placed in soil that lacks sustaining power; twenty plants are perhaps raised in a pot that does not contain food for half the number, and a good beginning results in a bad ending. Achimenes, like most other plants having fine, hair-like roots, start well in peat; but when a large number of plants is placed in one pot—and the plan is an excellent one—the peat alone will not sustain them throughout their period of growth, and beneath the peat should be placed richer soil.

In potting the tubers when they are plentiful a mistake is often made in filling the pots too full of soil. That is a very simple matter, but is, nevertheless, the cause of many, if not of most, failures in plant culture. A first-class plant grower never makes a mistake of that kind. He provides his plants with soil, and also provides the means of keeping that soil replenished with food for his plants, and this cannot be done when the pots are filled too full. Before plants can have a sufficiency of food in a liquid state space must be afforded to hold the liquid. Achimenes when in free growth require much water, and frequently need more than they receive, simply because an inadequate amount of water-holding space is provided at the surface of the pots. Therefore when many tubers are potted in one, and possibly the flowering pot, let the drainage be ample, the soil rich and rough at the bottom, the surface light, and the pots not filled—if large, to within 2 inches of their rims. If that plan is adopted too many tubers will not spoil the plants; but if it is not adopted—if the pots are filled quite full of light soil only, then the plants cannot receive the support which they need, and plenty (as is too commonly the case) ends in comparative failure.

Besides being adapted for cultivation in pots of various sizes, Achimenes are amongst the finest of basket plants. Baskets lined with moss and filled with suitable soil may be planted with tubers, and if the baskets are placed in a proper temperature and are carefully watered they will in a few months be balls of flowers. White, mauve, and pink varieties, planted in mixture, have a charming effect.—G.

CONFUSION IN CONIFERS.

MR. WEBSTER (page 368) has been exceptionally fortunate if he has frequently secured *C. nootkatensis* for *C. Lawsoniana*, as plants of the former cost about five times as much as those of the latter, and the difference in the price of seed is even greater. The two plants are quite dissimilar when they reach the size at which their characteristics are developed. The main branches of *C. Lawsoniana* droop from the trunk of the tree, and the secondary laterals bearing the foliage are set horizontally to the main branch. In *C. nootkatensis* the main branches rise from the stem curving upwards, and the laterals hang down from them. A well grown specimen is one of the most beautiful of the introduced Coniferae.

The cones of *C. Lawsoniana* form and mature in one season, while those of *C. nootkatensis* only ripen the second year.

In my experience its seed has also generally taken two years to germinate, while that of *Lawson's Cypress* comes away freely the first year, and the plants were of much more rapid growth than those of the other.

C. nootkatensis in its native habitat in British Columbia does not attain the dimensions which *C. Lawsoniana* does further south, but it is a tree of great economic value, growing from 30 to 38 metres in height, with a trunk of from 1.20 to 1.80 metres in diameter, and it is esteemed the most valuable timber tree in Alaska. In this country it flourishes in the poorest soil, and is extremely hardy. No frost affects its colour, but it sometimes suffers from lengthened drought in summer.—K. S. M., Ross-shire.



"JOURNAL OF HORTICULTURE" EDITORIAL DEPARTMENT.—

From the present date, and until further notice, it is particularly requested that all letters and parcels intended for the Editor, also all communications for insertion in the *Journal of Horticulture*, be addressed to S, Rose Hill Road, Wandsworth, London, S.W. N.B.—Business letters and advertisements must be addressed to the City Office.

— WEATHER IN LONDON.—The latter half of last week brought with it a considerable amount of rain, which fell in heavy showers at irregular intervals. With Sunday there came a pleasant change, for though the wind was still cold the sun shone brilliantly from an almost cloudless sky. Monday and Tuesday were also fine, though it was occasionally cloudy on the latter day. Wednesday was wet and cooler.

— WEATHER IN THE NORTH.—The past fortnight has been marked by cold ungenial weather. Although there has been a good deal of sunshine the nights have frequently been frosty, and high, dry, biting winds have prevailed. On the morning of the 1st there were 3° frost. On Monday the hills all round were whitened nearly to their bases with snow and hail, and there was sharp frost at night.—B. D., S. Perthshire.

— ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral meeting of the Royal Horticultural Society will be held on Tuesday, May 11th, in the Drill Hall, James Street, Victoria Street, Westminster, 1 to 5 P.M. At three o'clock a lecture will be given by Mr. G. Massee, F.L.S., on "Diseases of Plants, Especially of Orchids."

— A MARCH GALE.—Mr. R. West, Northlands, Salisbury, writes:—"I send you a photo of the effects of the gale here on Ash Wednesday, but the enclosed can give no idea of the destruction it caused. It nearly cleared the centre of the Scotch Fir plantation. I also send one of an *Araucaria imbricata* growing on the lawn, but it is not a good representation. The specimen is about 45 feet high, well furnished to the ground, and bearing this year seventy-eight cones. It has borne from thirty to fifty cones yearly since 1887." [Each of the photos was very interesting, but unfortunately neither was suitable for reproduction. The *Araucaria* is evidently very handsome.]

— CRYSTAL PALACE SHOW.—The managers of this popular resort have arranged to hold what they term a Great Victorian Era Flower Show on Wednesday and Thursday, June 23rd and 24th. Besides the Crystal Palace commemorative gold medal, £350 is being offered in prizes in the several classes scheduled. What may be termed the principal class is for a miscellaneous group of plants introduced during Her Majesty's reign, to be arranged in a semicircular space not exceeding 500 square feet. The premier award will be the gold medal just mentioned. For a group of *Begonias* £20 is offered, and for an arrangement of *Coniferae* £35; Palms taking a similar amount. The prizes in the remaining classes are equally generous, and a superb display should result. All communications relative to the Show must be addressed to the General Manager, Crystal Palace, S.E.

— *MONSTERA DELICIOSA*.—This handsome Aroid deserves to be more generally known and grown than it is. It is not only one of the most useful and effective of ornamental-foilage stove plants, but is also greatly esteemed for the luscious fruit which it produces when the plant has attained a fair size. In order, however, to thoroughly ripen the fruit, a high and moist temperature is necessary, in addition to which the fruit must be exposed to the sun's rays as much as possible. My object, however, in writing this note is not to direct attention to its fruiting qualities so much as to its great adaptability for planting out to cover bare walls in plant stoves and tropical ferneries. The plants grow luxuriantly against the walls, the long roots cling and penetrate the interstices of the brickwork and descend for many feet into the rock beds below. The peculiar appearance of its roots thus ramifying and descending in every direction, coupled with the beautifully cut or slit-like formation of its handsome dark green foliage, render it a most desirable plant for the purpose I have mentioned; especially so when, as in our case, the interior of the fernery is arranged as naturally and as informally as possible. I need scarcely add that this Aroid, similarly to its congeners, requires abundance of moisture.—S.

— GARDENING APPOINTMENT.—Mr. George Thomas, late foreman at Hutton Hall, Guisborough, has been appointed to succeed Mr. Kneller as head gardener to the Marquis of Ripon at Studley Royal, Ripon, Yorks.

— ROYAL BOTANIC GARDENS.—We learn that Indian *Rhododendrons* and large *Azaleas* are now in flower in the conservatories, and a very good collection of Japanese dwarfed plants, just imported, has been lent to the Society for exhibition by Mr. H. M. Beddington and Mr. Claude Beddington.

— ALL THE YEAR ROUND STOCK.—This is an odd name for a sweet-scented Stock of the Intermediate type, but the appellation seems to be justified by the undoubted fact that if plants be raised from seed sown in July, are kept housed in pots all the winter in a cool house or frame, or if wanted to bloom early, then in a little warmth, they flower profusely all the late winter and spring, then the flowers, hard cut for bunching or other purpose, and the plants after they have broken afresh stood or planted outdoors, they will bloom afresh, and do so all the summer. The variety is one of Messrs. Sutton & Sons' novelties, has flowers of the purest white, and carries 75 per cent. of double flowers.—A. D.

— THE WOOLLY APHIS, OR AMERICAN BLIGHT.—Can anyone tell us why this is called the American blight? I have been asked the question many times when giving lectures or technical instruction on horticulture in Warwickshire, where the pests are rampant. I have also found some very bad cases of Pear trees on walls infested, and consequently difficult to deal with at the back of the branches. I have never met with a case of attack on Plum trees, as stated on page 347. I wonder whether the pest was as prevalent in England before America was discovered? Some old Crab trees one comes across occasionally which are a mass of knobs caused by these pests look as though they had supported these pests some centuries.—J. HAM, *Astwood Bank*.

— INGREDIENTS OF THE SOIL.—Dr. Clark, in a lecture recently delivered at Ripon, said the best way of ascertaining the true character of the soil is to get the plants to tell themselves what the soil does or does not contain. If four plots, each 10 feet by 5 feet, are taken from a grass field and treated with different kinds of manures—the first with potash and phosphate, the second with potash and nitrogen, the third with phosphate and nitrogen, and the fourth with potash, phosphate, and nitrogen—it is possible by comparing the results in each case to ascertain whether the soil is deficient in potash, phosphate, or nitrogen, and to act accordingly. This is a practical test which shows not so much what plant food the soil contains as the amount the plants are capable of getting out of the soil, and it is, in Dr. Clark's opinion, of greater value to farmers than chemical analysis.

— *PYRUS SPECTABILIS*.—One of the most beautiful of the many species of the *Pyrus* grown solely for ornamental purposes is the one under notice. It is a native of China and Japan. In this country it is usually found growing to a height of from 15 to 20 feet, with a large spreading head. The flowers are produced in great abundance about the end of April; they are 2 inches across, pink in colour, and single in the type. There is, however, a variety which has white flowers, and another which has semi-double flowers. The latter for general purposes can be specially recommended, the flowers being of the same colour, and lasting longer than those of the type. The foliage of this plant in autumn is an additional recommendation, the leaves for several weeks before falling being of beautiful shades of orange and red. For large or small gardens this tree will be found acceptable, being easily kept within bounds by careful pruning.—W.

— *PRUNUS PSEUDO-CERASUS*.—A short time ago a plate of this beautiful *Prunus* was published in the *Journal of Horticulture*, and a glance at that cannot fail to impress anyone favourably. Good as the plate is, however, it cannot convey a true idea of the charming picture a fine specimen of this tree makes when in flower. Being of very free growth long strong shoots are made each year, and along the whole length of these the large bunches of flowers shown in the above-mentioned plate are produced. The flowers are often 2 inches across, pink in colour, and semi-double. On different plants, however, the colour varies, some having almost white flowers, whilst others are deep rose. A variety is also in cultivation having greenish-yellow flowers. When planting rich soil should be given, as it is a "gross feeder." Plants growing in good ground flower with much greater freedom than others of the same age planted in poorer soil. This plant is a native of China and Japan. As it becomes better known it is sure to find its way into the front rank of flowering trees.—W. D.

— SUSSEX WEATHER.—The total rainfall at Abbots Leigh, Haywards Heath, was 1.93 inch, being 0.18 inch above the average. The heaviest fall was 0.33, on the 16th. Rain fell on sixteen days. The maximum temperature was 69°, on the 27th; and the minimum 27°, on the 11th. Mean maximum, 54.19°; mean minimum, 38.14°; and the mean temperature was 46.18°, which is 0.76° below the average.—R. I.

— APRIL WEATHER AT DRIFFIELD.—Mean temperature at 9 A.M. (corrected), 45.12°; wet bulb, 42.12°. Mean maximum, 49.76°; mean minimum, 36.26°. Highest, 65.4° on the 29th; lowest, 24.4° on the 11th. Mean of maxima and minima, 43.01°. Mean radiation temperature on the grass, 30.93°; lowest, 16.8° on the 6th. Rainfall, 1.8 inch. Number of rainy days, nineteen; greatest amount on one day 0.33 inch on the 17th.—W. E. LOVEL *Observer, York Road, Driffeld.*

— WEATHER IN SOUTH WALES.—The following is a summary of the weather here for the past month:—Number of days on which rain fell, twenty-one; total fall, 4.84 inches. Maximum on the 17th, 0.83 inch. Mean maximum temperature, 54.1°; mean minimum, 34.6°. Highest reading, 74° on the 28th; lowest, 22° on the 1st. The wind was in the W. and S.W. on twelve days, and in the N. and N.W. on eight days. There were six sunless days. It was very wet until the 21st, as until then we had only two days without rain, with very strong winds the most of the time.—WM. MABBOTT, *Dowlais.*

— PLANT CHEMISTRY.—Of the seventy elementary substances recognised by chemists, only thirteen contribute to the formation of vegetable substances. Out of this baker's dozen all the varied forms of leaf, flower, and fruit are fashioned. Of these thirteen organic elements, three make up more than nine-tenths of all cultivated plants. These are carbon, oxygen, and hydrogen—carbon and water. While these make up the largest part of plants, they are not classed as manures, because they are not applied by hand, but come to the plants from the atmosphere in the form of carbonic acid and rain. They are Nature's free gift to plant life, and are borne on the wings of every wind that blows and the clouds that float aloft.—("California Fruit Grower.")

— BORDER POLYANTHUSES.—Being somewhat of an enthusiast over these lovely spring flowers, I went the other day all the way to Farnham to see a very fine lot at the Swiss Nursery, on Mr. S. Mortimer's invitation. He said he had a grand show, and he seems to have spoken truly. I found there growing and blooming luxuriantly one of the finest breadths, covering some 20 rods of ground, and comprising several thousands of plants, I have ever seen. It was almost strange the plants should have done so finely on what was a piece of rescued sandy heath, everyone having perforce been transplanted last autumn, because the ground on which then growing was needed for greenhouses. What big plants there were! Heads fully 12 inches over, quite massive; the flowers of the finest and richly coloured, indeed other than blue there were almost all other hues, from pure white down to the heaviest purple or crimson. It was indeed a rare pleasure to see such a show of Polyanthus as was here presented, and it is a pity thousands who have gardens could not have seen them, as all would want to grow them. Mr. Mortimer adopts my old plan of sowing seed outdoors at the end of August, leaving the seedlings in the bed all the winter, and dibbling them out in the spring. In that way they become in the second year wonderfully fine bloomers.—A. D.

— WAKEFIELD PAXTON SOCIETY.—At the ordinary weekly meeting of the members of the above Society on Saturday evening, April 24th, there was a good gathering. Mr. B. Whiteley presided, and Mr. J. G. Brown of Outwood occupied the vice-chair. The essayist was Mr. J. Duffan Pearson, Chilwell Nurseries, Nottingham, and his subject was "The Daffodil." Mr. Pearson has paid particular attention for some years to the growth and hybridisation of bulbs, and more particularly Daffodils, a spring flower which has in recent years come prominently to the front. He superintends the cultivation of a vast quantity of these bulbs, varying in price from a few shillings per 100 to £12 12s. each. In order to show the Wakefield Paxtonians what can be done by good management of good bulbs, Mr. Pearson brought a large and varied collection of choice named specimen blooms, and these were capitally staged and displayed, and were much admired. The lecturer spoke at considerable length, and very soon convinced his audience that he was quite at home with his subject. He gave the history of the Daffodil, clearly and fully explained the mode of cultivation, propagation, and hybridising, and gave much interesting information and many valuable hints to professional and amateur gardeners. An interesting discussion took place on the lecture.

— MYOSOTIS DISSITIFLORA.—Rarely have I seen a more effective show of this lovely blue hardy plant than was found just recently in the garden of an amateur near Farnham. He had it for edging his beds and borders; in every direction, indeed, the place was thoroughly blue. Every plant, too, was alike and equally floriferous. No trouble whatever, unfortunately, is taken to save seed, but it falls on the ground, germinates later, and thus gives myriads of plants; for this pretty Forget-me-not is entirely satisfactory only when it is raised yearly from seed. I have known seasons when the seed crop has been so poor I would have given anything to secure such a crop of seed as this amateur's hundreds of plants should give if ordinary care were exercised to save it.—D.

— PROSPECTIVE APPLE CROP IN AMERICA.—A traveller interested in the business of Apple growing who has taken journeys in the various fruit growing sections of the east says that the 1897 crop of the north will in all probability be light, and that the southern crop will be heavy. Last season the Apple crop in the south was exceedingly light, but the yield in New York, Michigan, and other northern States was far in excess of that of any previous year, being so large as to force the price down to almost a point that it would not pay to gather and ship the crop. The Apple tree seldom yields two large crops in succession. It takes a rest, and takes it at least every two years. The southern trees took in 1896 their rest, and reports from all the fruit sections of that region indicate a fine prospect for 1897, the number of fruit buds on the trees being great. But in the north the trees in 1896 did enough work to entitle them to a rest for several years, and the number of fruit buds on them for this season is so small that 1897 will certainly be one of their years for rest. Hence the north cannot raise a large crop in 1897, and with even fair conditions from now on the south will have an excellent yield.—("California Fruit Grower.")

— FORESTRY IN SWEDEN.—The Crown forests of Sweden comprise more than one-quarter of the entire wooded area of the country, and are managed with scrupulous care. The increase alone is cut, so that a productive forest is to stand for ever on all Crown lands that are unsuitable for cultivation. More than this, the Government has entered upon an extensive system of planting trees on desolate and uncultivated areas, and these object lessons have induced owners of private forests, especially the larger proprietors, to manage their timber lands, so they will become permanent sources of income. These facts, says an American contemporary, were communicated to our Department of State by Hon. W. W. Thomas, United States Minister to Sweden, and they are of particular interest, not only to Sweden, but also to the United States and to Canada, whose lumber meets the Swedish product as its greatest competitor in the markets of the world. Since the forests in Sweden grow slowly it has generally been supposed that the immense quantities exported would gradually exhaust this most important source of the nation's wealth, but from the facts stated it appears probable that the 47,000,000 acres of forests in the country will continue to be a source of income for all future time. The products of the forests now comprise nearly one-half of the total exports of the country in value.

— HAMPTON COURT PALACE GARDENS.—The springtime is with us, although at the moment of writing not very pleasantly tempered to coolness by keen north-easterly winds and sharp white frosts—doubtless a touch of the very old traditional Blackthorn winter. But in spite of that the spring flowers so commonly called, really border Polyanthus at Hampton Court, show now that it is the spring season, and in but a few days more will be at their best. The thousands of fine plants now blooming in beds and borders are reminders of Mr. Archibald Graham's and his old foreman Mr. Barnshaw's love for Polyanthus. It is to be hoped that the new superintendent, Mr. Gardener, will inherit that taste, and indeed see how to improve upon what has so far been so admirably done. At present the collection comprises too many light colours, especially white and pale yellow. These in every case should be selected and grouped separately. Then also the finest of each colour ought to be removed from the beds as soon as they show quality and be blocked separately into a reserve garden to give seed, their place in the bed being taken by reserve plants. The same should be done with the fewer deep-coloured forms, as of these there are far too many spotted or bizarre flowers that are mixed very ineffective. In all cases there are superior varieties found that merit the greatest care. The Tulips employed to give variety to the Polyanthus are very poor and small. Pinks do not harmonise at all. Whites, yellows, and crimsons are by far the best. It is hoped that the Board of Works will be more liberal in the matter of Tulips another year. The public now visit the gardens in great numbers on fine days, for they are a most popular resort.—A.



ROSE SHOW FIXTURES FOR 1897.

- June 7th (Monday).—Cambridge.
 " 9th (Wednesday).—Chelmsford.
 " 15th (Tuesday).—Ryde.
 " 18th (Friday).—Portsmouth (N.R.S.).
 " 23rd (Wednesday).—Richmond, Surrey.
 " 24th (Thursday).—Colchester.
 " 25th (Friday).—Maidstone.
 " 26th (Saturday).—Windsor and Dorking.
 " 29th (Tuesday).—Canterbury, Hereford, Sutton, and Westminster (R.H.S.).
 " 30th (Wednesday).—Croydon, Ealing, and Reading.
 July 2nd (Friday).—Crystal Palace (N.R.S.).
 " 7th (Wednesday).—Glasgow, Hanley,* Hitchin, Reigate, Leeds,† and Tunbridge Wells.
 " 8th (Thursday).—Bath, Gloucester, Harrow, Newcastle-on-Tyne, and Woodbridge.
 " 13th (Tuesday).—Wolverhampton.†
 " 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 " 17th (Saturday).—New Brighton.
 " 22nd (Thursday).—Halifax and Trentham.
 " 27th (Tuesday).—Tibshelf.
 " 28th (Wednesday).—Chester.*

* A show lasting two days. † Shows lasting three days.

The above are the only dates that have as yet reached me. I shall be glad to insert in the next list any further fixtures that may be sent me, whether of Rose shows or of horticultural exhibitions where Roses form a leading feature.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

NATIONAL ROSE SOCIETY.

SOUTHERN SHOW.

THIS year the National Rose Society will hold its Southern Show in the Victoria Park, Portsmouth, on Friday, June 18th, in conjunction with the Isle of Wight Rose Society. The parent Society schedules twenty-six classes, and the prizes consist of cups and money. This Southern meeting is happily becoming more and more popular every year, and it is to be hoped that the great seaport will thoroughly uphold the reputation that has been achieved at the many other towns visited in previous years. The near approach of the Jubilee festivities may perhaps tell slightly against the show, but not, it is anticipated, very much. The weather, by which Roses and rosarians are so much, and sometimes so hardly governed, will have great influence, and all growers will be glad to see the last of the cold easterly and north-easterly winds that have prevailed of late.

METROPOLITAN SHOW.

Friday, July 2nd, will, it is hoped, find the Crystal Palace once more a feast of Roses, for on that day the N.R.S. holds its great metropolitan show. Every Rose grower who is an exhibitor strives his utmost to be at the Palace, and those who do not stage go to criticise, and sometimes condemn, the flowers of those who do. The centre transept on show day is a picture of beauty and a dream of fragrance. Already speculations are afloat as to who will win the trophies, but the time of year is young, too much so, in fact, for anyone to prophesy with any confidence and likelihood of being correct. If the weather be kind to all growers we shall see an exhibition that will be worthy of the year, even amongst the many magnificent schemes that are afoot in celebration of Her Majesty's Diamond Jubilee. Owing to adverse circumstances the competition in many classes was decidedly weak last year, while the blooms in several instances were not at all in character; but, all being well, it is hoped the contest this year will be keener by reason of both the increased number and the higher quality of the flowers staged.

NORTHERN SHOW.

Excellent have been the Roses staged at many shows by the growers of the Eastern Counties, and this year they will on Thursday, July 15th, at Carrow Priory, Norwich, have an opportunity of improving their reputation by taking some of the prizes offered by the N.R.S. Amongst the thirty-four classes enumerated in the schedule there are two in which "Jubilee trophies" are offered, one to nurserymen, and the other to amateurs. The first-named class is for thirty-six distinct single trusses, and the winner will hold the 50-guinea challenge trophy, receiving in addition a Memorial gold medal. The amateurs' class is for twenty-four distinct single trusses, and again the 50-guinea trophy will be held by the premier winner for one year, and a Memorial gold medal. The local society known as the Norfolk and Norwich Horticultural Society will hold its annual show at the same time and place.

HARDY FLOWER NOTES.

WITH all the wealth of other flowers, we welcome the first of the Tulips to bloom. The Tulip has its faults, but it has its glories too, and ere the season is over I hope to say something of some of the rarer species and varieties yet to flower. Reading the other day in Henry Van Oosten's curious old work, "The Dutch Gardener or, the Compleat Florist," the first English translation of which was published in 1703, I was amused by his indignation at the criticism the Tulip received even in his day. Van Oosten seemed to think it necessary to defend or excuse the absence of perfume in what appears to have been his favourite flower. In the chapter headed "How you may judge whether a Tulip be handsome or no," he says that those who love the July flowers (Carnations) more than the Tulips "would do well to consider that Flowers ought chiefly to please the Sight and that the Smell gives them no Beauty." He proceeds:—"And they who value Flowers chiefly for their smell may supply themselves with Perfumes and not upbraid this Queen of Flowers for want of that Quality which derogates not in the least from her Beauty, nor renders her less pleasing in a Florist's Eye."

Yet Van Oosten notwithstanding, most of us will admit that the pleasant perfume of some other flowers, present in only a few of the Tulips, would be very acceptable in these flowers, which, when we understand their value aright by study of their most effective uses, will be even more appreciated than now, popular as they are. The first of my Tulips came into flower somewhere about the 6th or 7th of April. This was one of several lots of wild dwarf species, collected and sent by our good friend Mr. Edward Whittall, of Smyrna, in 1894 or 1895. It appears to be closely allied to *T. Biebersteiniana*, which is itself a variety of *sylvestris*. The flowers are bright yellow, and open out well in the sun, making a bright spot on the rockery on which they grow. This Tulip is only about 6 inches high. The only distinguishing marks on the parcel were the numbers attached by Mr. Whittall, which are 555 No. 1; but I hope he may be able to supply me with more information, if he has got the species identified at Kew.

The next to bloom was that noble Tulip, *Greigi aurea zonata*, of the beauty of whose spotted leaves and grand crimson and yellow flowers I have before spoken. I have not yet enjoyed a glimpse of it this season, but the recollection of the past beauty of former years is indelibly imprinted upon my memory, and the name of the flower brings afresh to view its glossiness and exquisite colouring. The next have been two out of a number of bulbs collected in Chios by a good friend of mine, Mr. D. W. Leighton of the Eastern Telegraph Company, now temporarily on duty in that disturbed island, Crete. These Tulips, belonging to the same section as *Oculus-solis*, are rather tall, but of very beautiful colouring. Pink is hardly the word to describe the colouring, but it might do if we could imagine a transfusion of terra-cotta through the deeper colouring of the segments. The fine *Tulipa Kaufmanniana*, honoured by the Royal Horticultural Society with a first-class certificate at a late meeting, is not going to flower this year; but as I spoke of it last spring I need not refer to it further at present. This was figured on page 335.

It is evident that there is an increasing interest in such Tulips as these which owe none of their beauty to the florists' art. Though this is the case we may yet hope to see them taken in hand with a view to securing greater variety and more beautiful flowers. Among the species in cultivation there is none more distinct than *Tulipa biflora*, whose flowers are not borne singly on the stem, as is usual in the genus, but are produced in greater numbers, from two to five being generally found. This Tulip looks odd in its way beside the others, its forking stems attracting attention by their peculiarity. The flowers, white with yellow eye inside and tinged with green on the exterior, look quiet and unassuming if compared with their more showy sisters. For a quiet nook in the rock garden there may be brighter, but there will be few more interesting flowers. *T. biflora* was introduced from the Caucasus about ninety years ago, and forms, we are told, the connecting link between the true Tulips and those of the sub-genus *Orithya*. The form here is the larger one known as *biflora* major. It requires no special advice as to cultivation, unless one may suggest that it might have a place sheltered as far as possible from late spring frosts, my flowers having been destroyed this year from this cause.

One may, at present, bring to a close these remarks on Tulips with a reference to an early-flowering one not coming within the category of the popular Dutch varieties now so brilliant in the garden. There are many Tulips which were grown long ago, but were relegated to obscurity when these plants became valued as "bedders" only, with the result that only those of the gayest colours, or of a distant effect, were in favour. How much we lost by this we begin to feel now; but happily in odd corners of

bulb nurseries, and in old gardens, some remained undestroyed. The beautiful variety Dame Elégante, in flower as I write, is one of these. Shenstone could never have seen a flower like this, or

such sentiments as these. She is a dainty, shapely, creamy yellow flower, with narrow carmine stripes, not unworthy of the name she has received. Mr. W. B. Hartland, of Cork, in his "Little



FIG. 79—SANGUINARIA CANADENSIS GRANDIFLORA

he would never have spoken as he did of the "gross splendours" of the Tulip, which are, he said, "inelegantly gay" in the distance, and "To the near view no pleasing charms display." Dame Elégante could by no possibility rouse (we cannot say inspire)

Book of Tulips," tells us that Dame Elégante is of French origin. However this may be, we hope she may long find a home in the gardens of the British Isles to give true pleasure to their owners and their friends.

These are only a few of the garden's delights. The Puccoon or Bloodroot, *Sanguinaria canadensis*, the large flowered variety of which, *S. c. grandiflora*, is depicted in fig. 79, spreads open its white blossoms to the midday sun. Primroses and Polyanthus of nearly all hues shine in shady corners. *Primula* species form objects of admiring glances from those who know their beauties. Alpine Auriculas look out here and there from the rock garden. Coloured varieties of *Anemone nemorosa* contrast with the purity of their snow-like sisters, or vie with *A. apennina*, though eclipsed by the Poppy Anemones or *A. fulgens*. *Doronicums*—Golden Marguerites—make masses of gold. Purple and white *Honesty*, blue Forget-me-nots, *Violas*, *Violets* of delicious fragrance, *Fumitories*, and others seek to charm us. Why prolong the tale? We cannot do more just now, and ere we take up the story again a fresh band of Earth's fair children will have made their appearance. Fair are they, and as years run on dearer do they become to him who looks upon them with loving eye. The garden of hardy flowers has its sorrows and its disappointments, but these are far outweighed by its joys and rewards. Pure and precious are these, not to be weighed nor measured, so overflowing are they with Heaven's bounties.—S. ARNOTT.

ROYAL HORTICULTURAL SOCIETY.

SCIENTIFIC COMMITTEE, APRIL 27TH.—Present: Dr. M. T. Masters (in the chair); Rev. W. Wilks, Rev. G. Henslow, Hon. Sec.

Tulips Diseased.—With reference to the Tulips "Golden Crown" sent to the last meeting by Mr. Thomas of Polegate, the following is the report received from Kew:—"The leaves are attacked by a fungus called *Botrytis vulgaris*, a destructive parasite to various bulbous plants. The mycelium of the fungus travels down the tissues of the host plant and forms minute sclerotia in the bulb and also in the soil in which the plant is growing. These sclerotia remain dormant during the winter, and commence to grow the following spring when the young leaves appear. Your correspondent is right in supposing that he will get no blooms. The wisest thing to do would be to remove all the diseased plants. It would not be wise to plant bulbs in the soil where the diseased plants have grown for the next two years. If this cannot conveniently be avoided, then let him plant 'trap-plants'—that is, comparatively worthless bulbs—to take up the spores and sclerotia present in the soil, and then remove them early in the summer before more sclerotia or spores are formed."

Podisoma sabinae.—Mr. E. Pollard of Colwall, Great Malvern, sent a specimen of *Savin* having the yellow jelly-like outgrowth from the stem of this fungus. It is dimorphic, the second stage being called *Rastelia cancellata*, and is found growing on rosaceous trees.

Pinus Torreyana.—Dr. Masters exhibited specimens of the large cones of this tree. It was found on the extreme southern coast of California, extending over about three to four miles only, and the group consisted of from 200 to 300 trees. It has since been discovered on the island of Santa Roza off the same coast. It is now in cultivation.

Lilies Diseased.—Mr. Noy of Brentford sent some Lilies. Some grown on land heavily manured with sewerage matter and ashes; others on land which had not been manured for several years, being a very light soil. They were attacked with a species of *Peronospora*, allied to the Potato disease; so possibly a treatment similar to that for Potatoes might be advantageous.

Tulip with Axillary Flower.—Mr. Townell, of Heaton, Newcastle-on-Tyne, sent a specimen of the Tulip "Proserpine," in which an additional small flower sprang from the axil of a leaf on the scape. It is not a common production, but similar growths occasionally occur.

Cineraria Crosses.—Messrs. James & Son of Farnham Royal sent several fine grown plants, which they had raised (1) between *Cineraria cruentus* crossed with garden forms, and four plants (2, 3, 4, 5) resulting from this; also (1) again crossed with *C. Heritieri* (6); also this last true species crossed with the first named (1). It had white flowers, with pink tips to the petals. Of the four plants, numbered 2, 3, 4, 5, No. 2 had foliage more resembling that of *C. cruentus*, but 3, 4, and 5 that of *C. Heritieri*, while three had a white ray and pink disk; 5 had both ray and disk of a crimson colour.

NATURAL BEAUTY IN PLEASURE GROUNDS.

PERMIT me to congratulate you in your promising recruit, "A Young Scot" (page 320). Amid many losses of grand old men and changes in hallowed places, it is pleasing to find new writers crowding into the ranks. Amid these I am glad to heartily welcome into the literary arena one that I can recognise through his safe disguise as a pupil of my own—"A Young Scot." As he has already learned that Simplicity weds with Negligence in Nature, and got smitten with the love of Birches, he cannot do better than clothe their silvery stems with a few graceful sprays of streaming Roses. With such a promising start "Young Scot" may in time make himself a place and a power in enlivening and ennobling not a few of our somewhat sombre and severe landscapes. The dying Goethe is said to have called for Light, more Light. Perhaps nine out of ten of our landscapes pine for greater freedom, sweeter grace, richer colouring; and it is hoped that there may be many other "Young Scots" spring up, and try their prentice

hands "on" forest pictures, in gardens, and in other ways, that shall mould the stiffly formal into the pleasing picturesque. Landscape gardeners, young and old, must carry the lesson that has become an axiom in other spheres of life into the garden—viz., that beauty or Nature unadorned is often adorned the most.—D. T. F.

ROYAL GARDENERS' ORPHAN FUND.

ON the 30th ult. nearly a hundred friends and members of this Charity gathered at the Hotel Cecil for the annual festival dinner. The chair was taken at 6.30 P.M. by Sir J. Whittaker Ellis, Bart., who was supported by Mr. Sheriff Rogers, Mr. N. N. Sherwood, Mr. H. J. Veitch, Mr. P. Crowley, Rev. W. Wilks, Mr. G. A. Dickson, and other well-known horticulturists. After dinner the Chairman gave the usual loyal toasts, which were enthusiastically received.

Sir J. WHITTAKER ELLIS, Bart., in proposing "Prosperity to the Royal Gardeners' Orphan Fund," expressed the opinion that the Charity deserved the consideration of all who derived any benefit from or had any interest in the work of the gardener. No profession was more important than that of horticulture, and none required so much skill and patience. The Chairman considered the system of provision made by the executive was admirable; it was far better to leave the children to the influences of home life, under the care of trustworthy people, than to place them together in one large school or home. He appealed to gardeners throughout the country to give what they could towards the feeding, clothing, and education of gardeners' orphans; and not only did he wish gardeners to subscribe as far as they were able, but he thought they might go a step farther and enlist the sympathy and help of their employers for so deserving an object. To obtain a large increase in the funds methodical and unanimous effort must be made, and they should look rather to the many small subscriptions than to the few large ones. His own experience of gardeners, extending over fifty years, was that they were the most painstaking, careful, and honest of servants. The only difficulty that ever arose was when a gardener so loved and cared for the garden and its contents that he objected to his employer doing anything more than admire what he produced. He had no cause to complain of lack of interest on the servant's part, and thought that good employers made good servants, and these in turn good employers. Sir J. Whittaker Ellis concluded by asking those present to use their best endeavours to make this memorable year a notable one in the history of the Fund by subscribing liberally to it. Loud applause followed the speech, which was in all respects an admirable one.

Mr. N. N. SHERWOOD, Treasurer to the Orphan Fund, responded to this toast, and took the opportunity to thank Sir J. Whittaker Ellis for his presence and help. He briefly showed the progress of the Charity since its inception in 1887, and expressed a hope that much more would yet be done. He admired the speech made by Mr. Owen Thomas on the occasion of the annual meeting, and trusted gardeners would all follow the advice then given. As Treasurer he desired to see more annual subscribers, and he hoped that the subscription list for 1897 would be exceptionally large, as would become so exceptional a year.

Mr. G. A. DICKSON of Chester proposed "Gardeners and Gardening." He admired the patience, industry, and skill of gardeners, and the wonderful results they obtained, even under adverse circumstances. In the coldest parts of Yorkshire and still farther north he had seen fine examples of the gardener's art in the plentiful supply of fruits, flowers, and vegetables, and the beautification of what were previously unlovely spots. He agreed with a friend of his, who had a splendid collection of oil paintings, that the garden was a finer picture than any canvas; a good garden seen in the varying moods of Nature, in storm and sunshine, in the warmth of spring and summer and the cold of winter, afforded continued pleasure and an unfailing interest. Mr. Dickson was glad to find a great extension of the love and practice of gardening, and he hoped that now commercial prosperity had returned more money would be expended upon gardeners and gardening than had been the case in the past.

The Rev. W. WILKS made an able speech in response to this toast. He reminded the gathering that now, as when Adam was the only gardener, good gardening was the result of hard work. The "sweat of the brow" was needed always to induce the earth to yield her increase. No body of men worked harder or more continuously than gardeners, and few received lower wages. A gardener had no interest in the eight-hour day question, for he had to be up and doing at early morn, and in the most unpleasant weather it was necessary for him to go out and attend to the fires when other folks were comfortably warm and in bed. This patient care and continuous work resulted in the provision of both necessities and luxuries for the employer, and those who were indebted for so much to the gardener should, he declared, do their utmost to encourage him. One of the best means of encouragement was to subscribe liberally to the Orphan Fund. The reverend gentleman appealed to all who assisted the Charity not to reduce their subscription this year in consequence of the many other appeals, but to let exceptional claims made to commemorate the long reign of Her Majesty be met from an exceptional purse; the Institution they had met to support should not be allowed to suffer while we paid special honour to our Sovereign.

"The Health of the Chairman," suitably proposed by Mr. Poupart, in the absence of Sir James Whitehead, was given with musical honours and cheers. Sir J. Whittaker Ellis, in thanking the meeting for the toast, expressed the pleasure he felt at being able to assist gardeners in any way, and he should take care that none of his friends should escape the question, "Do you subscribe to the Gardeners' Orphan

Fund?" The next item was the reading of the subscription list by Mr. B. Wynne, as follows:—

Sir J. Whittaker Ellis, £194 10s (including 50 guineas himself and £100 from Mr. Leonard Sutton); Sir James Whitehead, £10 10s.; Mr. G. Reynolds, £36 1s. 6d. (including Leopold de Rothschild, Esq., £10 and Mr. Anthony Waterer, £5); Covent Garden friends, per Mr. J. Asabee, £45 10s.; Messrs. Rothschilds, £26 5s.; Mr. N. N. Sherwood, £38 2s.; Baron Schöler, £25; Mr. A. W. G. Weeks, £20 8s.; Mr. Alfred de Rothschild, £10; Dickson's, Ltd., £10 10s.; Mr. Harry J. Veitch, £10 10s.; Messrs. J. Veitch & Sons, £10 10s.; Messrs. Barr & Son, £10 10s.; Mr. D. P. Laird, £9 1s.; Mr. W. Poupart, £9; Mr. W. G. Baker, £8 8s.; Mr. W. J. Nutting, £7 17s. 6d.; Mr. F. T. McKenzie, £8 3s.; Mr. K. Drost, £7 7s.; Mr. J. F. McLeod, £7 5s.; Mr. E. Gilbert, £5 10s. 6d.; Mr. Geo. Bunyard, £5 5s.; Mr. A. H. Smee, £5; Mr. A. W. Sutton, £5; Mr. J. Walker, £5; Mr. T. Whillans, £5 12s. 6d.; Mr. P. Crowley, £7 2s.; Mr. G. A. Dickson, £5 5s.; Mr. Blackwood, £5; Mr. S. C. Ward, £5 7s.; Mr. G. H. Richards, £5; Mr. S. M. Segar, £5; and Mr. W. H. Holmes, £5 5s. These, with several smaller amounts, making a total of £670.

The toast of "The Visitors" was ably proposed by Mr. Arnold Moss, and admirably responded to by Mr. Sheriff Rogers, who paid tribute to the ability of Mr. W. Marshall, as Chairman of the Committee. At this point the Chairman retired, and his place was taken by Mr. N. N. Sherwood. A vote of thanks was accorded Miss Hudson, and the donors of the fruits and flowers for the dinner, the many vases of drooping Parrot Tulips, given by Mr. J. Walker, having a beautiful effect. Other toasts were "The Treasurer" and "The Secretary, Mr. A. F. Barron."

An excellent programme of music was arranged by Mr. Herbert Schartau, and his efforts during the evening were thoroughly appreciated.

THE CARROT FLY (PSILA ROSÆ).

CARROTS are frequently much injured by the larvæ or maggots of this fly, which bore into and feed upon their roots, living upon them and causing them to become brown or rusty, and finally rotten. In some cases of early attack the growth of the small roots is entirely stopped. Carrots grown by market gardeners and market garden farmers for "bunching," or pulling early, are not often materially injured, as the fly does not, as a rule, attack them until the middle of May, though the latest of these early pulled roots are sometimes disfigured and their value depreciated because of the rusty spots made by the larvæ; but those that are dug late for storing, either for human or for cattle food, are very frequently seriously damaged, and rot in the clamps and stores, and are unsaleable by reason of the rust marks upon them. It has been noticed that the Carrot fly is more injurious in dry seasons, when the growth of the roots is not so luxuriant and rapid as when moisture is plentiful and the rain closes the soil, which in some degree may hinder the fly from laying eggs, as it is said that the female fly goes below the earth for this purpose.

Carrots badly attacked by this insect have deep cracks in the roots in which the larvæ are found. These frequently extend to the centre of the roots, and cause them to rot. The tops become brown and wither away, and in the early stages of the attack, when as yet there are only a few larvæ in the roots, the foliage changes and betrays their presence. When these indications are noticed, it will be generally found upon pulling up the roots that larvæ are protruding from the holes in them. In bad cases of this infestation, decay is frequently hastened by the attacks of millipedes attracted by the unhealthy state of the roots, and by slugs and "pea bugs" (*Oniscus*). The larvæ of the Carrot fly often remain in the roots after they have been stored, and continue to injure them for some time.

The Carrot fly is well known in Germany. Kühn says it causes the most common disorder of Carrots termed "worm-rot" (*Wurmfaule*) and the "iron mould" affection. It is also occasionally troublesome in France and in other European countries. Recently it has been noticed in Canada. Schiner states that it infests Rape and Turnips, and that the flies may be found in numbers in the early spring on the over branches of bushes and trees in damp situations.

LIFE HISTORY.

The Carrot fly is shiny black in colour, and about the fifth of an inch long, with a wing expanse of nearly half an inch. The wings are iridescent, having dark yellow veins. The head is round, of a reddish yellow colour, and very sparingly covered with hairs. The legs are of a light ochreous colour. There is not much difference between the male and female, except that the body of the latter is more pointed than that of the male, and is furnished with a long retractile egg depositor.

In the early spring the flies appear, and may be seen upon the lower leaves of trees and bushes, especially near brooks and streams. When the Carrot roots are well established the flies lay eggs upon them, just below the ground. All authorities agree that the eggs are laid below the surface of the ground, but none have actually observed how deeply the fly goes down for this purpose. It is believed that it is only just below the surface, and that the larva when hatched goes down instinctively to the lower part of the Carrot, as the root is softer there and more easily penetrated. When it has gained a footing the larva works upwards and makes passages, with frequent holes to the outside. The larva is without legs, yellowish white in colour, like parchment, as Bouché says, and nearly a quarter of an inch long. It has no distinct head; but its fore end tapers to a point, in which there are two claw-formed hooks for biting and boring. Before pupating it leaves the root,

and, going into the earth, assumes a pupa case of a light brown colour, with many wrinkled folds. At the tail end two small black points are seen. The head end is very sloping.

There are several generations during the summer. Kühn states that the series of changes is accomplished in between three and four weeks. The pupæ of the last generations remain in the earth, and occasionally in the roots, during the winter, and the flies come forth in the first spring days.

METHODS OF PREVENTION AND REMEDIES.

When it is noticed that the tops of Carrots change colour prematurely and become rusty, the roots should be examined, and those that are infested must be forked up so that no part of them is left in the ground, and destroyed. This will prevent further infestation.

If the flies are seen near or on the Carrot plants they should be sprinkled with paraffin emulsion, made by mixing paraffin and softsoap together, in the proportion of 1 gallon of paraffin and half a pound of softsoap to 10 gallons of water. The softsoap must be dissolved in a gallon of hot water, and the paraffin added and thoroughly incorporated by means of a hand pump or syringe, and the proper quantity of water, added to dilute it. This emulsion can be put on by means of a knapsack machine, or in large fields of Carrots by a horse distributor.

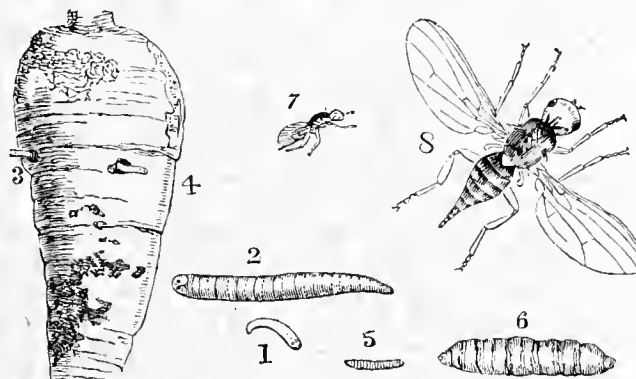


FIG. 80.—CARROT FLY AND LARVÆ.

1, 2, and 3, Larvæ, natural size and magnified; 4, infested Carrot; 5 and 6, pupæ; 7 and 8, Carrot Fly, natural size and magnified.

In places where these flies cause injury, ashes, sawdust, sand, wood ashes, or peat moss, well triturated and impregnated with paraffin oil at the rate of from 3 to 4 quarts per cwt. may be put into the drills with the seed. Curtis recommends a gallon of spirit of tar to a barrowful of sand for this purpose. It is stated that pressing the earth close round the root stems may prevent the flies from egg-laying. This may be done immediately after the plants are singled, by men or boys treading both sides of the rows; and in fields where Carrots are grown on a large scale, and the seed is broadcasted, a light roller may be used for this purpose.

Sand or ashes impregnated with paraffin or carbolic acid may be scattered over the plants at singling time to keep the flies from them. The great object must be to prevent the flies from laying eggs on the Carrots, and for this purpose offensive substances, such as soot, or earth, ashes, or sand, sprinkled with carbolic acid, might be applied as soon as the plants are well established.

After an infested Carrot crop has been removed, the land should be trenched in gardens, and very deeply ploughed in fields. A good dressing of gas lime should be applied before the land is dug or ploughed in the ordinary way.—(*Board of Agriculture Leaflet, No. 38*)

NATIONAL AURICULA SOCIETY.

(NORTHERN SECTION.)

THIS Society held a most successful Exhibition in the Free Library, Middleton, near Manchester, on Saturday last, May 1st. Both plants and exhibitors were present in unprecedentedly large numbers, and all the classes were well filled. The date chosen seemed to suit every one, and competitors from districts so widely apart as Birmingham and North Yorkshire were enabled to meet on apparently equal terms.

The Rev. F. D. Horner brought his superb seedlings in splendid order, admiring growers yearned to possess them with a kind of hope deferred expression on their faces, which was almost pitiful. It is much to be regretted that Messrs. Horner's and Simonite's highly bred varieties increase so slowly, for a great impetus would be given to the cult could some of them get into general cultivation. Mr. Tom Lord of Todmorden again showed what could be done with the old varieties. It is always a treat to see Geo. Lightbody, Rev. F. D. Horner, Acme, Prince of Greens, and Mrs. Potts as grown by him. Miss Woodhead, Mr. Kershaw, Mr. Midgley, and Mr. A. R. Brown also showed the older varieties in most creditable style.

The premier Auricula was a superb example of Barlow's Mrs. Henwood, exhibited by the Rev. F. D. Horner. A curious feature of the show was the excellence of the green edged class; a few years back this division was very weak, but thanks to the labours of seedling raisers, which appear to have been concentrated upon this class, it is now actually the strongest. Amongst fine new green edges Orient and Hamlet (Horner), Shirley Hibberd and Chloe (Simonite), and Mrs. Henwood (Barlow) may be mentioned. Messrs. Lord and Kershaw also showed good unnamed seedling greens.

In grey edges not so much has been done, Mr. Horner's Greyhound

and Eyebright being the only novelties of note, except a promising seedling of Mr. Harrison's. White edges were not of great excellence, the only varieties to rival Acme being Mr. Horner's Magpie and Miranda. Selfs were excellently shown by Messrs. Horner, Lord, Bentley, and Simonite. The ubiquitous Mrs. Potts was in good form. Mr. Horner's Midnight, Dusk, Eurydice, Favourite, and Titania, and Mr. Bentley's Gerald completely throw into the shade most of the older varieties.

Alpines were magnificently shown. In this popular class the number of fine novelties was almost bewildering. Mr. Gorton had some superb unnamed seedlings. Mr. A. R. Brown proved that the southern florists were in no ways behind the men of the north. Mr. Beswick showed Richard Gorton, a beautifully proportioned variety of uncommon shade of bright brownish red, which deservedly won the prize for the best Alpine in the exhibition. Mr. Lees had also a charming white ground seedling. Mr. Bentley showed Charles W. Needham, which is all an Alpine needs to be, and the exhibits of Messrs. Buckley, Stelfox, and Lord showed that they thoroughly knew how this charming flower ought to be grown. In Polyanthus Messrs. Thornley, Beswick, and Stringer showed the old varieties in good style, and Mr. Prescott showed two promising seedlings. The Judges made the following awards:—

Class A.—Six dissimilar Auriculas.—First, Rev. F. D. Horner, Barton-in-Lonsdale, with Eurydice and Midnight (selfs), Magpie, Mrs. Henwood, Shirley Hibberd, and Geo. Lightbody. Second, Mr. T. Lord, Todmorden, with Mrs. Potts, Rev. F. D. Horner, Prince of Greens, seedling green edge, George Lightbody, and Acme. Third, Miss Woodhead, Halifax, with Mrs. Potts, Rev. F. D. Horner, George Lightbody, Traill's Beauty, and Acme. Fourth, Mr. W. H. Midgley, Halifax, with Mrs. Potts, Rev. F. D. Horner, Rachel, George Lightbody, Conservative, and Mrs. Dodwell. Fifth, Mr. A. R. Brown, Birmingham, with Mrs. Potts, Rev. F. D. Horner, George Lightbody, Richard Headly, Heather Bell, and Black Bess. Sixth, Mr. G. Middleton, Prestwich, with Negro, Rev. F. D. Horner, George Rudd, Rachel, Smiling Beauty, and John Waterston. Seventh, Mr. J. Clements, Birmingham, with Mrs. Potts, Rev. F. D. Horner, Brunette, C. E. Brown, George Rudd, and Mrs. Dodwell. There were nine exhibits in this class.

Class B.—Four dissimilar Auriculas.—First, Rev. F. D. Horner, with Favourite, self; Shirley Hibberd, Greyhound, and Miranda. Second, Mr. W. Kershaw, Ashton-under-Lyne, with Mrs. Potts, Rev. F. D. Horner, George Lightbody, and Mrs. Dodwell. Third, Mr. T. Lord, with Mrs. Potts, Rev. F. D. Horner, George Lightbody, and Acme. Fourth, Mr. W. H. Midgley, with Mrs. Potts, Rev. F. D. Horner, George Lightbody, and Acme. Fifth, Mr. J. Wood, Staleybridge, with Blue Peter, Rev. F. D. Horner, W. Brockbank, and Heather Bell. Sixth, Mr. A. E. Brown, with Mrs. Potts, Rev. F. D. Horner, George Lightbody, and Heather Bell. Seventh, Mr. Stelfox, Staleybridge, with Blue Peter, Mars, Rachel, and Heather Bell. There were sixteen exhibitors in this class.

Class C.—Pairs of Auriculas.—First, Mr. E. Shaw, Moston, with Mrs. Potts and George Lightbody. Second, Mr. Kershaw, with Rev. F. D. Horner and Acme. Third, Mr. R. Gorton, Eccles, with John Hannaford and Heather Bell. Fourth, Mr. J. Stokes, Birmingham, with Mrs. Potts and Rev. F. D. Horner. Fifth, Mr. G. Thornley, Middleton, with Mrs. Potts and Traill's Beauty. Sixth, Mr. J. Stelfox, with Mrs. Potts and Geo. Rudd. Seventh, Mr. J. W. Bentley, Middleton, with Mrs. Potts and Rev. F. D. Horner.

Class D.—Pairs for maiden growers.—First, Mr. J. Harrison, Congleton, with George Rudd and Seedling. Second, Mr. W. Stringer, Middleton, with Mrs. Potts and Acme. Third, Mr. W. M. Shipman, Altrincham, with Mrs. Potts and Rev. F. D. Horner.

Class E.—Single plants, green edges.—First and second, Rev. F. D. Horner, with Hamlet and Orient. Third, Mr. Lord, with a Seedling. Fourth, Mr. Midgley, with Rev. F. D. Horner. Fifth, Mr. Simonite, Sheffield, with Seedling. Sixth, Mr. Kershaw, with Seedling. Seventh, Mr. Lord, with Prince of Greens. Eighth, Rev. F. D. Horner, with Shirley Hibberd.

Class F.—Single plants, grey edges.—First, Miss Woodhead, with Rachel. Second, Rev. F. D. Horner, with Seedling. Third, Mr. E. Shaw, with Dinham. Fourth, Mr. Lord, with Geo. Lightbody. Fifth, Rev. F. D. Horner, with Eyebright. Sixth, Mr. Kershaw, with Richard Headly. Seventh, Mr. Shaw, with Conservative. Eighth, Mr. T. Buckley, with George Rudd.

Class G.—Single plants, white edges.—First, Mr. Lord, with Heather Bell. Second, Rev. F. D. Horner, with Magpie. Third, Mr. Lord, with Smiling Beauty. Fourth, Mr. Lord, with Acme. Fifth, Rev. F. D. Horner, with Miranda. Sixth, Miss Woodhead, with Conservative. Seventh, Mr. Stelfox, with Dr. Kidd. Eighth, Mr. Wood, with Frank Simonite.

Class H.—Single plants, selfs.—First, Mr. Lord, with Mrs. Potts. Second, Rev. F. D. Horner, with Dusk. Third, Mr. Bentley, with Gerald. Fourth, Rev. F. D. Horner, with Eurydice. Fifth, Rev. F. D. Horner, with Titania. Sixth, Mr. Simonite, with Seedling. Seventh, Mr. Lord, with Red Perfection. Eighth, Mr. Midgley, with Heroine. Premier Auricula, Rev. F. D. Horner, with Mrs. Henwood.

ALPINES.

Class I.—Six dissimilar Alpines.—First, Mr. A. R. Brown, Birmingham, with Fred Knighton, Winnifred, Dr. Knott, A. A. Jones, Countess, and J. F. Kew. Second, Mr. T. Buckley, with Dr. Durnford, John Allen, Mrs. Beswick, Bright Eyes, Forest Queen, and Dr. Knott. Third, Mr. R. Gorton, with Dreadnought, John Allen, and four fine seedlings. Fourth, Mr. J. Stelfox, with Bright Eyes, Dr. Knott, Dr. Durnford, John Allen, Emir, and Forest Queen. Fifth, Mr. J. Beswick, with Bright Eyes, Mrs. Beswick, Forest Queen, Rev. F. D. Horner, Mr. Gorton, and

Dr. Darnford. Sixth, Mr. T. Lord, with Bright Eyes, Dr. Durnford, John Ashton, Mrs. Dodwell, Nora, and John Allen.

Class J.—Four dissimilar Alpines.—First, Mr. Beswick, with John Allen, John Ashton, Bright Eyes, and Dr. Durnford. Second, Mr. Buckley, with Bright Eyes, Dr. Knott, Dr. Durnford, and John Allen. Third, Mr. A. R. Brown, with Dr. Knott, Defiance, John Allen, and Unique. Fourth, Mr. R. Gorton, with Pluto and three seedlings. Fifth, Mr. Stelfox, with Bright Eyes, Dr. Knott, Dr. Durnford, and John Allen. Sixth, Mr. Lord, with Bright Eyes, John Ashton, Charles Turner, and John Allen.

Class K.—Pair of Alpines.—First, Mr. Bentley, with Dr. Durnford and C. W. Needham. Second, Mr. Stringer, with Forest Queen and John Allen. Third, Mr. Wood, with Emir and Bright Eyes. Fourth, Mr. Middleton, with Troubadour and Diadem.

Class L.—Single plants, yellow centres.—First, Mr. Lord, with John Allen. Second, Mr. Gorton, with Seedling 136. Third, fourth, and fifth, Mr. Stelfox, with Emir, Dr. Knott, Dr. Durnford. Sixth, Mr. Lord, with Bright Eyes.

Class M.—Single plants, white centres.—First, Mr. Beswick, with Seedling 117. Second, Mr. Lees, with Seedling. Third, Mr. T. Lord, with Exonian. Fourth, Mr. Beswick, with Henry Pomroy. Fifth, Mr. Brown, with John Ashton. Sixth, Mr. Beswick, with Countess.

Best Alpine in the show, Richard Gorton, shown by Mr. J. Beswick.

POLYANTHUSES.

Class N.—Three dissimilar, black grounds.—First, Mr. Thornley, with Cheshire Favourite, Exile, and Mrs. Brownhill. Second, Mr. Beswick, with Cheshire Favourite, Exile, and Mrs. Brownhill. Third, Mr. Stringer, with Lancashire Hero, Cheshire Favourite, and Mrs. Brownhill.

Class O.—Three dissimilar, red grounds.—First, Mr. Beswick, with Lancer, Middleton Favourite, and George IV. Second, Mr. Thornley, with Sidney Smith, Middleton Favourite, and George IV. Third, Mr. Stringer, with Sidney Smith, Middleton Favourite, and George IV.

Class P.—Single plants, black grounds.—First, Mr. Stringer, with Mrs. Brownhill. Second, Mr. Greenhalgh, with Cheshire Favourite. Third, Mr. Prescott, with Seedling. Fourth, Mr. Beswick, with Exile. Fifth, Mr. Beswick, with Lancashire Hero.

Class Q.—Single plants, red grounds.—First and second, Mr. Thornley, with George IV. and Middleton Favourite. Third and fourth, Mr. Beswick, with Lancer and William IV. Fifth, Mr. Thornley, with Sidney Smith.

HARMFUL AND HARMLESS GARDEN MOTHS—3.

'Tis possible that I may at some time or other have remarked in these columns that the name of "hawk moths" does not seem very suitable for the group of insects to which it belongs. They have not the ravenous qualities of the bird, nor its remarkably keen vision, and even the rapid fliers amongst these moths are scarcely hawk-like in movement. Peculiar, too, was another appellation given by the old entomologists; they called these moths (large and small) the Sphinxes—not because the insects presented a perplexing riddle, but on account of the attitude of repose assumed by certain of the caterpillars, which they fancied had a resemblance to the famous Egyptian Sphinx. It has been stated in several books that one of the local names for them is moth owlets, but I rather incline to think that belongs to some of the furry, greyish, slow-moving moths of the Bombyx tribe which occur about gardens at dusk. Possibly the larger hawk moths, such as the unicorn or Convolvulus and the Privet species, might a little distance off be mistaken for diminutive bats.

Unlike the death's head moth the Convolvulus Sphinx has a remarkably long tongue, which, even when flying, it stretches out, and thus suggested its other name, but of course it is also the possessor of two proper horns or antennæ. In gardens its special attraction is said to be the flowers of the Petunia, beside which many an entomologist has patiently watched in vain, for the insect is generally rare, though some seasons specimens appear all over the country. It is one of those species of moths which have been thought to be more numerous every seven years, but about this there is a doubt. A large and handsome moth; though not very brightly coloured in the wings, the body is conspicuous.

A friend tells us that one morning an old lady he knew was startled to discover a specimen in repose upon her doormat. She did not venture to approach it, so slipping out the back way she called in some neighbours, and they stood round it with curiosity or fear. Her cat had joined the party, and as the moth quivered its wings slightly, puss clapped her paw upon it, and thus ended their perplexity. The caterpillar, presumably a feeder by night, is seldom seen; it occurs on both the wild and garden Convolvulus during summer, also it is stated sometimes to eat the leaves of Balsams.

Most gardeners have seen upon the Privet hedges in August or September the caterpillars of the Privet hawk (Sphinx Ligustri), which, when nearly adult, is notable by its showy stripes of white and violet upon a light green ground. Perhaps it is for this reason that this caterpillar is chiefly visible early in the morning, and at

dusk, retiring during the day to the interior of the bush. I fancy some birds may attack and carry it off, but the cockney sparrow, I believe, lets it alone; for about London, especially in the West, it was till recently common on the hedges. The moth flies just at the season when the Privet comes into bloom. It is scarcely to be called a disfiguring caterpillar, though, from its size, rather voracious, and so the effects of its jaws are discernible on the twigs. Occasionally this caterpillar eats Lilac for a change, and I have found it upon the Plum. May or June often exhibits to us a sample of the Poplar hawk (*Smerinthus Populi*) resting on a paling or tree trunk quietly, with the greyish wings partially folded. Not till sunset does the moth rouse itself for an aerial excursion, not usually to any great distance. The caterpillar is greenish yellow, having a yellow horn, and feeds high up, often upon various Poplars; also, it is said by Newman to be found some seasons upon the common Laurel, and the Laurustinus.

Its near relative, the eyed hawk (*S. ocellatus*), thus named from the beautiful eye-like spots of black and white on the rosy red hind wings, comes to the garden sweets of May; as caterpillar it has probably lived not far off upon a Willow or Poplar. We have the species placed, however, upon the list of the foes of fruit trees, and I have several times taken caterpillars off the Apple, and they have been noticed upon the Peach; but their preference is not for these, nor are they numerous enough to be harmful. This is a whitish green, rough caterpillar with a blue horn, which distinguishes it from the kindred species. A brisk autumn wind occasionally blows down to a garden path a Lime hawk caterpillar, remarkable for having not only a horn like its brethren, but a curious plate or scale at the tail end of the body. Frequently it feeds on tall Elms, hence its sudden downfall. The moth is darker than the preceding, and rather less in size.

A lady friend discovered upon the Vines in her conservatory, a few years since, some caterpillars of the elephant hawk (*Chærocampa Elpenor*); it is not often taken under glass, but has also been noticed on Fuchsias. In the country its usual food is the leaves of some Willow Herb or Bedstraw. Here we have an instance of eyes marking a caterpillar not a moth, as upon its brown or green sides are two dark spots, which have been taken for the actual eyes of the insect. The name "elephant," too, is really applicable to the caterpillar, because it has a habit of elongating and then shortening the front segments, which suggested a resemblance to an elephant's trunk. In France, however, the people call the caterpillars of this and other species "cochonnes," comparing them to the snout of a pig! Some of them produce strong winged moths of bright colours; one of the handsomest is the Oleander Sphinx, abundant in some parts of Asia and Africa, found occasionally on the Continent where the Oleander flourishes, and stragglers have crossed over to English gardens.

The humming bird hawk (*Macroglossa stellatarum*) is an insect which has attracted notice in many a garden, and is responsible for various statements in newspapers about the appearance of a "humming bird in England." No doubt there is a resemblance—the size, the attitude of the moth, its outspread tail, its hum, too; and there are countries where people call it the bird fly. But it lacks the brilliancy of hue which is characteristic of the exotic birds, or of most. A good old entomologist, given to florid language, thus apostrophises this lively moth—"What is this at our Jasmine, with brilliant eye, with outspread and parti-coloured tail, humming loudly, and though driven away, returning from the rising to the setting of the sun? It is the humming bird hawk; from January to December we have some flower welcome to her, and she is welcome, most welcome to us and ours." Here is a little exaggeration, for this moth is hardly out on the wing quite as long, though it is seen sometimes from spring to autumn, and has been taken in the winter months. Certainly it does come back repeatedly to a flower or a resting place from which it has been disturbed, and it is specially partial to Jessamine.

Coming to fragrant plants on window-sills this moth frequently passes through an open sash into some room, creating surprise by its erratic flight up to the ceiling and round the walls. The long tongue suggested the generic name, and the specific one reminds us that the caterpillar feeds upon starry-flowered plants—i.e., on some of the Bedstraws or Galiums. It has a horn, blue tipped with red, the green body marked with white lines and dots. Years ago I used to find this caterpillar along some of the banks among Fulham market gardens, which have now been swept away. The moth just described has two near relatives, also natives of Britain, but less common, which any gardener might excusably mistake for a large bee. Both have tufts of hair along the body, which the insects spread out when flying, and transparent wings, but the long tongue they extend in hovering over flowers is an implement no bee could rival. Hence they dart rapidly from one to another; if alarmed going at immense speed, and are difficult to capture. One of our species has a narrow border to the wings—this occurs

chiefly in the north, the other, with a broad border, haunts the south. They are partial to the open spaces in woods, and lanes near them, but sometimes they appear as visitors to gardens, tempted by their floral attractions.—ENTOMOLOGIST.

SARMIENTA REPENS.

THIS, "F. J. B.," is the sole representative of a Chilean genus of Gesneraceæ. It is a curious fact that many plants from Chili have pendulous flowers of a red or scarlet colour, such as *Lapageria rosea* and *Fuchsia*, and the one now referred to, which is represented in fig. 81, is no exception, the flowers being scarlet and pendulous. The stems are long and slender, straggling over the ground, and rooting at the nodes. The leaves are about half an inch long, ovate and fleshy, the upper surface dark green. The peduncles, which are about 1 inch in length, carry one flower, of which the sepals are very small and have many hairs on them. The tubular corolla is an inch long, constricted at the



FIG. 81.—SARMIENTA REPENS.

throat and spreading at the mouth. Two of the stamens are half an inch longer than the corolla, and when carrying their yellow anthers add largely to the beauty of the plant. *Sarmienta repens* does well in baskets in peat, sphagnum, and a few pieces of sandstone. Care must be taken not to overwater during the winter. Its graceful habit and beautifully coloured flowers should win for it more extensive cultivation.

THE FORMATION OF DEW.

THE following observations by Dr. J. G. McPherson, F.R.S.E., Lecturer on Meteorology in the University of St. Andrews, are cited from the "Wakefield Express":—"Until very recently the exact constitution of the nature and formation of dew was unknown even by scientific men. The opinion was generally held that if you sped through the glistening meadow on a summer evening, through the diamond drops sparkling in millions, you would get your boots or trousers moistened with dew. It was also believed that dew fell from the air upon the ground. Now in both cases the opinion is wrong, for it is not dew at all which was encountered in the meadow, and dew does not fall from the air. If you look into the garden on a dewy night—for there is such a thing as dew for all that—you will find some plants moist. Glistening drops appear on the Broccoli, but the Peas are dry. Place a hand-lantern below one of the healthiest Broccoli leaves, and you will find that the moisture is collected in clear drops along the edge of the leaf and at the end of the veins of the leaf. The leaf veins radiating from

the centre line of the surface have carried the moisture of the healthy plant to the edges to keep up plant circulation; and the drops you see are not dew drops, but the watery juices carried out by the energy of the healthy plant. For place the lantern under an unhealthy leaf, and you will find no drops; there is no circulating vitality in it. Again, examine grass blades, and you will find large drops near the tips of the blades, the rest of the blades being quite dry. The large drops seen on plants at night are falsely called dew; they are produced from the plants themselves as tokens of their active and healthy growth.

This can be demonstrated in more than one way. Remove a branch of Poppy and connect it by means of an indiarubber tube with a head of water of about 40 inches. After placing a glass receiver over it to prevent evaporation, leave it for three hours. Then you will find water has been freely excreted through the veins, resembling what were familiarly called "dew drops." If the water pressed into the leaf is coloured with aniline blue, the drops when they first appear are colourless, but before they grow to any size the blue appears, showing that little water was held in the veins. What, then, has been for centuries called dew is not dew at all, but the watery juices of the healthy plants.

But look over dead leaves on a dewy night, and you will see a fine pearly lustre—that is dew. Dead matter gets equally wet when equally exposed, and real dew is not so common as is generally supposed. On many nights on which grass gets wet no true dew is deposited on it, and on all nights, when growth is healthy, the exuded drops always appear before the true dew. The difference between the true and the false dew can easily be detected. The moisture exuded from the leaf veins of the grass—false dew—is always isolated at points situated near the tips of the blades, forming drops of some size; whereas true dew collects evenly all over the blades. A glance distinguishes the pearly lustre of the dewy film from the glistening diamond drops of the healthy plant's juices.

But whence comes the dew? It does not fall from the air. Whence comes it, then? We shall see. Ground a little below the surface is always warmer than the air over it. So long, then, as the surface of the ground is above the dew point vapour must rise and pass from the land into the air. The moist air so formed will mingle with the air above it, and its moisture will be condensed, forming dew wherever it comes into contact with a surface cooled below the dew point. In fact, dew rises from the ground.

Place some metal trays over the grass, the soil, and the road on dewy nights. You will generally find more moisture on the grass inside the trays than outside; you will always observe a deposit of dew inside the trays, even when there is none outside at all. This shows that far more vapour rises out of the ground during the night than condenses as dew on the grass and the objects.

Pieces of iron lying on grass are soon surrounded with richer grass, on account of the moisture which the cold metal attracts from the rising water-vapour. Travellers in Australia and South Africa state that they often found the under side of their waterproof bedding placed on the ground to be wet after camping out at night. That shows that even in dry countries vapour rises from the ground at night. I remember, when walking in the vicinity of Hexham with an acute observer, trained to farming, that, on my remarking that the farmers might to their profit remove the extraordinary quantity of small stones from the fields in order to give room for the growth of the grain, he shrewdly said, "These stones collect moisture from the ground; the soil is thin, with a gravelly subsoil, and unless the maximum amount of moisture is collected (which can only be done by allowing these stones to remain), there would be a very deficient crop. They must not therefore be removed."

Dew, then, rises from the ground. But how is the dew formed on bodies high up in the air? If the dew comes out of the ground, should it not be found on bodies only exposed to the earth? Now, dew does not rise in particles, as it was once considered to fall in particles like fine rain. It rises in vapour. Some is caught by what is on the surface of the earth, but the rest ascends in vapour form until it comes in contact with a much colder surface, to condense it into moisture. The vapour does not flow upwards in a uniform stream, but is mixed in the air by eddies and wind currents, and carried to bodies far from where it rose. In fact, dew may be deposited, even though the country for many miles all round is dry and incapable of yielding any vapour. In such cases the supply of vapour to form that dew would depend on the evaporation of the dew, and on what was wafted over by the winds.

But the most practically convincing proof of the rising of dew from the ground is in the form of hoar frost or frozen dew. If it has been a bright, clear, sunny day in January, with no snow on the ground, look over the garden, grass, and walks on the morning after the intense cold of the night; big leaves may be found scattered over the place. You see little or no hoar frost on the upper surface of the leaves, but turn up the surface next the earth, or the road, or the grass, and what will you see? You have only to handle the leaf in this way to be highly astonished. A thick, white coating of hoar frost, as thick as a layer of snow, is on the under surface. Leaf after leaf will present the same appearance. If a number of leaves have been overlapping each other, then there will be no coating of hoar frost under the top leaves; but when you reach the lowest layer, next the bare ground, you will find the hoar frost on the under surface of the leaves. Now, that is positive proof that the hoar frost has not fallen from the air, but has risen from the earth. And hoar frost is frozen dew.

Dew, then, mostly rises from the ground, and what used to be thought

dew is the active exudation of the healthy grass. These two facts are now established. Brilliant globules are produced by the vital action of the plant, showing life in one of the most charming forms in the phenomena of Nature.

THE YOUNG GARDENERS' DOMAIN.

AMARYLLIS.

THESE very useful bulbous plants are so rarely seen well grown that a few notes on their culture may prove helpful to some reader of the "Domain." Their true value is most appreciated when arranged for effect in a conservatory, although they are useful where cut blooms are in demand for decorative purposes. They can be grown so as to produce a succession of flowers for several months by starting the bulbs into growth at intervals of a few weeks. We grow them very successfully, having each season a magnificent display. Several bulbs have produced three flower spikes, carrying twenty-three individual flowers from one bulb. They are grown in a Peach house, where the temperature seems to suit them admirably.

After flowering we repot the bulbs every second year, removing all offsets, and shaking off the old soil. We use a compost of three parts good fibrous loam, one of leaf soil, and one of cow manure well dried and rubbed fine, with about one-fifth part of silver sand. The plants are potted firmly, shaded for a few days, and placed in gentle heat, where they are grown until they have finished their growth. They are watered regularly until the foliage shows signs of maturation, when water is gradually withheld. During the resting season the bulbs should be watered occasionally to prevent their shrivelling.

I think the best mode of propagation is by offsets, although plants may be raised from seed, and usually flower in about three years. A sharp look out is kept for insects, and any that may be detected are quickly destroyed.—J. F. D.

[Will our correspondent oblige by numbering his sheets? The plants referred to are no doubt Hippeastrums.]

VIOLET MARIE LOUISE.

THERE are few flowers that excel (in a combination of good qualities) this beautiful double Violet. They are handsome, and continue fresh and fragrant a considerable time after being picked. For buttonholes they are exceedingly valuable, and are much sought after by both sexes of our employers.

A small bunch kept in a room scents the air, which is very refreshing, but too much of the scent is not, I think, conducive to health. Speaking from experience, it has a tendency to cause headache. Nevertheless these Violets are extensively grown for their scent alone.

They are of easy culture, and produce abundance of blooms throughout the winter—a time when they are most appreciated. Judging from my experience frame rather than pot culture is the more profitable, though I admit when they are grown in pots in a house there is one advantage—in being accessible for picking from in severe frosty weather, when those in frames may be utterly unapproachable. The soil in the frames should be taken out to the depth of 4 feet, then leaves of the previous autumn's collecting trodden firmly in to within about 15 inches of the glass. On the bed should be placed 9 inches of a good compost of loam and well-decayed leaf mould in equal parts to receive the roots, planting generally being done about the last week in August. Before lifting the plants (presuming they have been planted out in the open for the summer) it is a good plan, unless rain has been plentiful, to give them a thorough soaking the day previous, as the soil is then not so liable to fall away from the roots, and flagging of the leaves is greatly diminished.

They should be planted about 8 inches asunder, making them firm and being careful not to bury the crowns too deeply, which I have noticed is a great drawback in several respects. Planting being finished the whole ought to be well watered, when the plants will soon commence flowering and continue throughout the winter. Should they show signs of red spider the foliage must be well syringed two or three times a day unless the sun is very hot.

The lights should be placed over them as soon as cold nights set in, always propping them up for the admission of air, except in case of severe frost, or the leaves will soon turn mouldy. They need picking over occasionally, as any decaying leaf soon contaminates those adjacent to it, and a mass of decay follows which is very detrimental.

For supplying the stock for the following year the strongest crowns ought to be selected and pegged into the soil, all others being cut away as they appear. An occasional supply of liquid manure suits them.—ASPIRANT.

THE MELON.

IF early fruits are desired sow one or two seeds in 3-inch pots about the middle of December. Use a loamy compost with a little leaf mould added. If the pots can be plunged in a hotbed until germination takes place so much the better. The temperature of the house should range from 65° to 70° by night and 70° to 75° by day. When the young seedlings appear take the pots from the plunging material, and arrange the plants as near the glass as possible, avoiding draughts. When nicely rooted place in 5-inch pots, using a compost as before, but rougher. Do not be too liberal with water, as the plants soon damp off if too much is given. The pots should be placed on a shelf about 1 foot from the glass to prevent the plants from becoming drawn. Aim at sturdy growth, and good results should follow.

Before the pots get too full of roots, if it is intended to plant them out in beds where bottom heat is at command, all should be in readiness for their reception. The compost, consisting of three parts good fibrous loam, one of manure, and a slight sprinkling of soot, should be placed in a ridge about 2 feet through, extending the length of the house. When it is well warmed through and the bottom heat ranges about 80° it will be suitable for the plants. If it is intended to fruit them in pots these should be 11 inches in diameter, clean, and well drained. The soil to be used for potting should be placed in the house several days before being required for use in order that it may be well warmed through. Pot firmly, allowing space for future top-dressings. Stand the pots on a warm surface if space for pinning is not at command. Allow a distance of about 2 feet 6 inches from plant to plant.

When planting in the ridges do not plant too deeply. A distance of from 2 feet to 2 feet 6 inches is sufficient for ridge-planting, according to the method of training the plants. Very little water will be required at first, and when afforded it should be clear, as in its early stages of growth the Melon does not relish stimulants.

Gardeners have different methods of training Melon plants, but I think what is known as the single cordon system is the simplest, and at the same time it affords the quickest results. This consists of allowing the plants to run about three parts the height of their allotted space before pinching the point out, and stopping all the side shoots at one leaf beyond where the female flower shows. If the growths be thought too close together do not hesitate in removing a few to prevent overcrowding of the leaves. It should be the object of the grower, by judicious pinching, to get three or four flowers open at once before fertilising. —SEMPER.

(To be continued.)

EARLY FRUIT HOUSES.

THIS is one of the most important features connected with gardening. If one has a collection of plants of any description that do not look quite happy, they can in most cases be restored to health in a comparatively short space of time by strict attention to their cultural requirements. But with a vinery or Peach house, where the crop has failed from any cause, it is very different, as we have to put up with an eyesore for the whole season. No one is so much annoyed at this as the man in charge of the houses, if he takes interest in his work. However, such cases as losing the whole crop are somewhat rare, although I have seen several in my experience; but poor and indifferent crops are frequently met with. There are various causes for these failures; sometimes they are of a puzzling nature, but generally the cause or causes are within the power of the gardener or man in charge.

Take the case of early vineries for instance. One hears some of the following reasons sometimes for indifferent crops:—1, I do not think the wood was sufficiently well ripened (matured is meant); last autumn was very wet. 2, They were overcropped last year. 3, I think they are wrong at the roots, and want replanting in a new border. Any of these reasons may or may not be the cause. The first one is doubtful, as early Vines ripen their fruit first, and the wood generally gets well matured if airing and stopping the growths are attended to. No. 2, Overcropping is not so often the case with early Vines as later ones, as most gardeners seem to realise that early Vines should have moderate crops. Mistakes in overcropping are sometimes made through size of bunches, a number of small bunches being very misleading, looking a heavy crop, whereas bunches from 2 lbs. upwards, if only one-third the number, form invariably the heavier crop.

We must be guided by circumstances about cropping, as the size of borders, number of rods, and condition of the Vines, whether strong and healthy, must be considered. The results may be seen more or less the same year, as the berries are smaller and not finished so well, growths not so vigorous, and the next year the Vines will not break so strongly as they might, nor will the bunches be so large as usual. No. 3, The last excuse finds favour with most gardeners, rightly so in many cases, although I have known instances where the roots were not at fault. Especially do I remember one case, where the border was well made with the best of soil, and was one mass of good active roots, and although the crop was light the berries shrank badly, which shows something beside plenty of roots is necessary to their well being. No doubt many have noticed that the treatment has been different where the borders have been remade. The vinery is looked after much better, the airing is more carefully done, the water is warmed when required, no cold draughts are allowed, and no plants permitted on the border for a time, and altogether this house receives more attention than any other. The Vines succeed under these conditions, but it is not all due to the fresh soil.

A great improvement may sometimes be brought about by stricter attention to various smaller items in Vine culture. Moisture both at the roots and about the house requires to be used by a thoughtful person, as too little or too much will bring about bad results. With early Vines much depends on the size of the borders, but if they are kept moist after the growths are well started nothing serious will occur. Damping down the house, if done at the proper time, helps very considerably towards the best results. The practice of standing rows of Beans, Tomatoes, or such-like plants, that require a large amount of water on the border, must be condemned, as it soddens the soil, and loss of roots occur.

Ventilation plays an important part in early houses, as much depends on the weather and situation. Knowledge on this subject is best gained by taking into consideration size of house, how situated, the mode of

ventilating, and by carefully watching the thermometer. Disbudding should be done as early as possible, and stopping must not be neglected, always remembering that large healthy foliage thinly distributed is much more beneficial to the Vines than runaway shoots. Thinning the bunches requires care, or defects in the crop will be very serious.

It is good policy to spare a little more time than is often allowed for the work in the fruit houses, as the value of good early Grapes, Peaches, and Melons is well known, and there is no doubt that success is gained more frequently when the work is done carefully and at the proper time. Failures are not always the gardener's fault, as sometimes the heating apparatus goes wrong; but the potting of a plant, for instance, if put off for a day is not so bad as neglecting the necessary work in an early fruit house or two.—J. L. G.



HARDY FRUIT GARDEN.

Mulching Strawberries.—Quarters of Strawberries in full bearing and older plants will now receive much benefit from a liberal dressing of farmyard manure spread between the rows. That containing a large proportion of strawy material is the best for present application. The soluble matter held by the decomposed or solid manure is washed into the soil among the roots, which quickly appropriate it. This leaves the undecomposed and strawy parts on the surface, and being washed clean by rains a suitable resting bed is formed for the fruit. The mulching, too, is serviceable in preventing evaporation from the soil and maintaining moisture about the fibrous roots abundantly present in the surface soil, where they have a natural tendency to ramify.

Young Strawberry Beds.—Beds planted early in autumn or late summer are showing flower trusses. If the plants were established sufficiently early and the flower trusses are strong a fair amount of fruit may be expected. Should, however, the plants be weak, it is not desirable that the flowers remain to develop. It is better to remove them, allowing all the energies of the plants to be concentrated in strengthening the crowns for the succeeding year; also cut off runners. Hoe the soil frequently to keep down weeds and promote growth. Later in the season mulch between the plants, though not so liberally as with old plants.

Disbudding Vines on Walls.—As soon as possible, when the Vines have produced growths, attend to the removal of such shoots which are likely to be superfluous or ill-placed. When spur-pruned, and the spurs are left long, there are usually more growths produced than room can be found for ultimately. As the principal leaves develop they demand a share of light. Rub off the least promising growths, preferably retaining those showing fruit and situated nearest to the main rods. Shoots starting from the old wood are usually unfruitful, and if not required for furnishing space or to lay in for producing new spurs the earlier they are dispensed with the better. Adopt the principle of disbudding gradually, so as not to provoke a check by the removal of large numbers of growths at one time. When in active growth an interval of a few days may only be allowed to intervene between the operations.

The attention required in disbudding gives an excellent opportunity to select well-placed shoots for training in. These are suitable for replacing older canes or exhausted spurs, and for furnishing vacancies with vigorous rods. Trained thinly and well ripened they bear fruit the following season. Lengths of 4 feet, however, are sufficiently long to retain under the most favourable conditions of maturing the wood.

Fruit Tree Enemies.—Difficult insects to destroy on fruit trees are the small caterpillars which are found enclosed in small webs, causing in many cases the leaves to adhere together or curl, so that they cannot properly develop. Owing to this, insecticides which may be applied cannot reach the pests. The best and most effectual remedy is hand-picking at the present time. Attacks may be prevented by dressing the branches and shoots with insecticides when in a dormant state. Apricots are attacked very frequently by a maggot which must be sought for in those leaves which are curled or rolled up, either crushing the larvæ with the thumb and finger or unfolding the leaves and picking them out. The points of shoots of cordon Apples are in some seasons infested with very small caterpillars, binding the tender young leaves together and feeding on the tissues. They should either be removed or crushed, as they frequently destroy the leading points.

Blistered Leaves.—The curled and blistered leaves met with on Peaches and Nectarines are due to the ravages of a fungus, *Exoascus deformans*, which luxuriates under conditions brought about by the exposure of the growths to the full effects of cold and bleak positions. The best immediate remedies to apply are the removal and burning of the affected leaves. Afford, if possible, temporary shelter from cutting east winds. In selecting a site for planting these fruits the necessity for a warm and sheltered position must be kept in view.

Aphides.—Aphides are of various colours, some being black or purple, some brown, and others green. All are pests of a troublesome character to fruit trees on walls, especially Peaches, Nectarines, Cherries

and Plums. If they appear on the shoots in the course of the present month exterminate them early. Syringing them with clean water is a ready means of dislodging the early colonies, also dusting with tobacco powder, but in very bad cases the use of insecticides in solution must be resorted to. A dry condition of the soil about the roots favours their establishment and increase, hence it is desirable that the rooting medium be kept properly moist. The present is a suitable time to give a copious watering, which will act beneficially in assisting the early stages of fruit development, and so invigorate the trees generally that they will not be readily subject to insects.

FRUIT FORCING.

Peaches and Nectarines.—*Earliest Forced Trees*—On the very early varieties the ripening fruit must be kept dry, also the foliage; but the border should not be allowed to become very dry, or it will act injuriously upon the growth and affect the formation and maturation of the buds for future bearing. As the fruit of the other varieties will not be ripe for some time keep the atmosphere moist by frequent sprinklings during the day, syringing in the morning and again when closing the house. The night temperature will be perfectly safe at 65° to 70°, but 5° less, though it will retard the ripening, will not tax the energies of the trees so much as the higher temperatures.

Fruit Stoning.—During this process the trees must not be hurried; 60° to 65° at night is ample, and 70° to 75° by day, avoiding high night temperatures and sudden fluctuations by carefully attending to ventilation. A little air admitted at night will prevent the deposition of moisture on the foliage through the night to any serious extent, and enlarge the openings when the sun acts on the house, yet without lowering the temperature, which should advance with the power of the sun and a corresponding increase of the ventilation. Avoid anything calculated to dry the atmosphere suddenly, such as fumigation and opening the ventilators widely after the sun has acted some time on the house, for the effect is to cripple the foliage, when the fruit from the check may be seriously imperilled and fall. Early closing is to some extent desirable, and an advantage in swelling the fruit to a good size, but it must not be continued too long. It is also advisable to allow a little extra latitude to the growth, but on no account permit foliage to be developed that must afterwards be removed in quantity. Keep the inside border well supplied with water, and avoid undue excitement at the roots by stimulating them with quickly acting nitrogenous manure in either solid or liquid form. Judicious feeding, however, is a great aid to trees when stoning; but let it be of a phosphatic, potassic, and magnesian nature. The surface may be mulched lightly to keep it moist and attract the roots.

Trees Swelling their Fruit.—These swell most at two periods—namely, after setting, until the commencement of stoning. The first is materially, if not entirely, influenced by the previous storing of matter in the trees and the available food in the soil; but a genial condition of the atmosphere accelerates the swelling of the fruits, and the means employed to secure a good root action, which is best effected by a judicious and gradual regulation of the growths by the process of disbudding and in thinning the fruits. Overcrowding is a great evil, but large reductions of foliage at one time as well as fruit are not good. There is no safety save in a steady progressive growth and careful disbudding. The more vigorous the trees the greater is the danger of the fruit being cast in stoning, and the evil is afterwards increased by severe disbudding, also by a close and moist atmosphere. In the last swelling after stoning tie the shoots down, so that the fruits may be fully exposed to light, but moderate extension of the growth will materially assist the fruit in swelling, care being taken that the principal foliage and fruits be not interfered with. Supply water thoroughly to inside borders when necessary, and liquid manure to weakly trees.

Vines.—*Early Forced.*—Where the Grapes are ripe fire heat will only be necessary to keep the temperature at about 60° at night, ventilating freely by day. Black Hamburg and other thin-skinned black Grapes will need slight shade, such as that of a double thickness of herring nets over the roof lights, and it will also prevent amber-coloured Grapes assuming a brownish hue, detracting from their appearance. Damp the house occasionally, not allowing moisture to be condensed on the berries, but prevent it by a little ventilation constantly, and insure its dissipation by increasing the amount early. A certain extent of air moisture is necessary for the foliage, and will not injure the Grapes provided the atmosphere is not stagnant. A moderate extension of the laterals is advisable, as it tends to keep the roots active and to prevent the premature ripening of the foliage, which must be kept clean and healthy as long as possible. If the principal leaves fall a prey to red spider, and there are no laterals to utilise the sap, it is probable that the axillary buds will be started prematurely. If fermenting materials have been applied to the border part of them should now be removed, leaving sufficient for a mulch, and if the roots are active in the lower part of the material a little fresh may be placed on the surface to protect them from the atmosphere and impart a neat appearance.

Early Muscats.—It is hardly possible, and certainly not desirable, to have Muscat of Alexandria ripe before June. Black Muscat (Muscat Hamburg) may be ripened by the end of April; but it sets its berries very indifferently at an early season, and fertilisation makes very little difference, as the pistillate parts of the flower are often devoid of ovules, and cannot possibly be set. Madresfield Court cannot be classed as a Muscat in the same sense as a Muscat of Alexandria, but it forces admirably, and has some Muscat flavour. Crops of Muscat of Alexandria

started in December are now ripening, and the Vines must not lack water at the roots. Examine the inside border every week, and if moisture be necessary give it, or liquid manure liberally and warm. The temperature should be kept at 65° to 70° at night, 70° to 75° by day artificially, and through the day at 80° to 90° from sun heat. A circulation of air should be kept constantly, warm and rather dry air being necessary to perfection in Muscats. If the sun is very powerful, and the panes of glass large and clear, a single thickness of herring nets drawn over the roof lights will break the force of the rays, preventing scorching of the leaves and berries, which is often occasioned by the deposition of moisture on them, and the latter is a common cause of spot.

Vines Started at the New Year.—The Grapes are colouring, and need a moderate amount of air moisture to swell well, damping the house two or three times a day until the colouring approaches completion, when a drier atmosphere will be advisable; but moisture must not be entirely withdrawn, or red spider will seriously damage the foliage, and premature ripening of the leaves will be induced, the Vines starting into growth when they should be going to rest. Afford free ventilation, having a little at the top of the house constantly; a circulation of warm air contributes to good finish and quality. Moisture at the roots must be furnished thoroughly, one good soaking of tepid liquid when the Grapes change colour and a mulch of partially decayed manure will generally secure sufficient moisture until the Grapes are ripe. The roots, however, must not lack moisture. Atmospheric moisture will not injure Grapes of this class (Hamburg and Sweetwater) at this time of year provided it is not stagnant and deposited on the berries, and this will not occur if the ventilation is properly attended to, and a gentle warmth is maintained in the hot-water pipes. Keep the night temperature at 65°, a little more on warm, and a few degrees less on cold nights, 70° to 75° by day, 80° to 90° with sun heat and full ventilation, closing at 80°, all but a small space at the top of the house.

Succession Houses.—The sun is an important factor in keeping down the bill for fuel. There is nothing like opening the ventilators early in the morning, admitting air in a safe quantity to pass through the house. It causes excessive moisture to disappear, allows the foliage and fruit to warm equally with the atmosphere, preventing scorching, while elaboration begins early, and is continued through the day. By closing early the crops are accelerated in swelling, provided there is a due supply of atmospheric moisture, which can be secured by damping the paths and borders at closing time. Before nightfall admit a little air at the top of the house. This chink for air saves Vines from scorching when the air-giver is not up early on sunny mornings, but the ventilation should be increased by the time the sun acts powerfully on the house. Thinning the berries must be attended to and followed up persistently. The morning and evening is the best time for operating, alike to cultivator and the Grapes. Remove all surplus bunches. Stop or remove laterals not required, letting those retained extend where space permits. Do not crowd the foliage, and never allow the laterals to interfere with the principal leaves, as these, to feed the buds at their base, require free exposure to light and air. Supply water or liquid manure to the borders liberally when needed, and encourage surface roots with top-dressings of superphosphate, fish meal, and blood manure. It is a good plan to mix all together with as much of the whole added of wood ashes, and sprinkle a handful (about 4 ozs.) on each square yard, washing in. Sulphate of ammonia assists Vines needing vigour. Nitrate of soda may be used where the soil is sandy or chalky, and nitrate of potash where that substance is deficient, an ounce per square yard being sufficient for one dressing. The night temperature should be kept at 60° to 65°, 70° to 75°, and 80° to 90° from sun heat.

Late Vines.—These are advanced for flowering, and the early started may be in bloom. When out allow a night temperature of 70°, and 80° by day, with a free circulation of air, but not a drying current, a genial atmosphere being maintained by damping the paths and borders. Brush the shy-setting varieties over with a camel's-hair brush, and fertilise the bunches carefully where there is a deficiency of pollen, taking it from those that afford it freely. Up to and after flowering the night temperature should be kept at 65°, 70° to 75° by day artificially, keeping at 80° to 85° or 90° through the day, with moderate ventilation in bright weather, and admit air when mild. Thin the bunches and berries, removing duplicate bunches unflinchingly, and reserve the most compact. The free-setting varieties should be commenced with first, leaving the shy-setting kinds until it can be seen which are the properly fertilised berries by their taking the lead in swelling. Forward Vines that have only been recently started, seeking advancement by sun heat, but allow a free circulation of air so as to insure sturdy growth and stout foliage.

PLANT HOUSES.

Richardias.—Plants that have flowered may be placed outside in a sheltered position for a few days and then planted out. Provide a well-manured trench for them, so that the base of the stem will be a little below the surface. Break up old balls at planting time, and divide so that they will not need disturbing when the lifting season arrives further than is necessary to reduce the balls to fit pots of serviceable sizes. Young stock that has been grown on may be planted out at once without disturbing the roots. If the weather continues dry give the plants a good soaking of water after they are planted out, and mulch the surface with manure or a mixture of leaves and manure that has been used for hotbeds.

Eupatoriums.—Exhausted specimens may be cut back closely if larger plants are needed another season. When they have commenced growth partially reduce their roots and replot them. Start them in

frames until they are growing and rooting freely, when they can be hardened and planted outside or placed into larger pots and plunged in an open sunny position. Where plants are needed in 6 and 7-inch pots insert cuttings at once. They root quickly in hand-lights in ainery or similar structure. Directly they are rooted pot singly and place the plants in a cool frame, and finally outside.

Chrysanthemums.—Those that are being grown on the single-stem principle are becoming too tall for frames. Harden them and place them outside in a sheltered position. As they are placed out supply each plant with a stake, for strong winds and heavy rains may break them. If these plants have been in 6-inch pots for some time and are well rooted place them into their largest pots, but be careful not to overwater them. Those that were rooted later may still have the protection of frames, but give them abundance of air to prevent their drawing up weakly. The object to be aimed at is a firm sturdy growth. Gradually harden those that are still in small pots, so that they can be placed outside as they are potted. In potting be careful that the soil is in a suitable condition for moisture. If wet the plants seldom succeed satisfactorily afterwards. Water carefully and syringe freely. Remove the laterals from the axils of the leaves as they appear from those that are grown for the production of large blooms. Some of the earliest plants will show signs of branching near the top; help them out of this condition by pinching the shoots to a lateral that is showing prominently. Early flowering varieties may be allowed to branch in a natural manner, when the required number of shoots for leading upwards may be selected and the remainder removed, the necessary supply of stakes being collected together in readiness.

Ivy-leaved Pelargoniums.—Plants that are rooted for autumn and winter flowering may be potted singly in 8-inch pots. When they are rooting freely place them in cool frames to induce sturdy growth. Cuttings may still be rooted, and the plants will be useful for winter flowering. At this season these should be rooted singly in small pots, so that they can be repotted without checking them.

Zonal Varieties.—Cuttings may still be rooted in quantity for winter flowering on the same principle as advised for Ivy-leaved varieties. Those well rooted in 3-inch pots may be pinched and placed into 6-inch pots. Press the soil firmly into the pots, and use a compost of loam, one-seventh of manure and sand. Place the plants as they are potted into cold frames; keep them close for a time until they are rooting freely, when they may be hardened and stood in a sunny place outside.

French and Fancy Varieties.—Give those that are throwing up their flower trusses liquid manure in a weak state every time they need water. Soot water is very stimulating to these plants, and acts quickly. A suitable artificial manure applied to the surface of the soil is the safest and quickest method of feeding these plants. Keep later plants perfectly cool and give them abundance of air. The closer the glass these plants can be kept and the more air admitted the sturdier they grow and the finer are their flowers. Plants that were rooted late and are weak and puny in appearance will, if well cared for, make grand early flowering plants for another year. Those that some would throw away have a good start of cuttings inserted even now, and will, with care and proper treatment, make plants 2 feet through them by next spring. Stop the shoots until the plants are well established in 4 or 5-inch pots, then allow them to grow, without pinching, outside, keeping them somewhat dry until the middle of July, when they may be partially shortened back, and when they have broken into growth potted and kept growing on. These plants may be pinched once afterwards and placed in their largest pots early in January and allowed to lengthen out their shoots and flower. They should never be really dried up. Old stool plants may be cut up for cuttings; insert wood that has a moderate amount of firmness about it. Wood of this nature soon roots, and plants of a large size may be produced for early flowering next spring.

find them much weaker than they expected. This is not owing to any fault in management, but may be put down solely to the weather. In South Yorkshire there have not been more than three days during the past month in which the bees have been able to go any distance from their hives. This is tantalising to the bee-keeper, who has had to supply his bees artificially with what could have been obtained naturally if the weather had been favourable.

TWO QUEENS IN A HIVE.

This is not an impossibility, though uncommon. I do not refer to the double-queened hive, in which there is a division board to keep the bees separate in the brood nest, although the workers amalgamate in the supers, but when treated in this manner it is two stocks pure and simple. I allude to an ordinary single colony, at the entrance of which a queen was observed to be balled, on one of the few fine days experienced a fortnight ago. She was at once liberated, but was again balled by the bees. As this was an unusual occurrence so early in the season, she was placed in a box, and the colony examined. It was a strong stock with brood in various stages of development, and as I expected, a queen was found on one of the combs. Before examining them I was convinced such was the case, for had they not a queen, and no means of raising one, the bees would joyfully have accepted a queen from whatever source she came, and would not have balled her at the entrance.

But where did the strange queen come from? Was she turned out of the hive on the floor board of which she was found, or had she come with a starvation swarm which had been tempted to leave their home whilst the sun was shining brightly, and had joined the inmates of the hive in which she was found? Such, I believe, was the true history of the case. The rightful owners would accept the workers, but not the queen, who was seized and balled before she could gain admittance. This I consider is the correct theory, as I afterwards introduced her to a colony which had not a satisfactory queen, and which has since been fed with warm syrup daily. She has filled several frames with brood, and is an active prolific queen. The queen, too, in the stock in which she was found is equally prolific, being a young one hatched in June of last year.—AN ENGLISH BEE-KEEPER.

350 LBS. OF HONEY FROM ONE HIVE.

I FANCY I am able to throw the searchlight of the destructive criticism upon the extraordinary yield of honey commented on by your correspondents. The paragraph went the round of the Scotch papers uncontradicted, but it had arisen from the ignorance of a reporter. The amount of honey (350 lbs.) was not taken from a single hive, but was taken off in a week by the owner of an apiary of some twenty hives, who, being one of those bee-keepers who cannot resist the opportunity of making their fellows turn green with envy, suffered the statement to be spread abroad unchecked, although, doubtless, he chuckled over the reporter's stupidity in secret. I am able to say these things with certainty, as the incident occurred quite in my own neighbourhood, and also to certify that it was the occasion of much merriment among all those who knew the true circumstances of the case, and who know too well that such a phenomenal yield is beyond even the fondest dreams of an enthusiast.—A BORDER BEE-KEEPER.

CLEANSING COMBS.

I SHOULD be glad to know the best way to purify or disinfect combs in a bar-frame hive in readiness for the coming season, from which stocks have died.—R. T. W.

[If the bees died owing to shortness of stores or from queenlessness, and the combs are clean, they may again be used with advantage. They will probably have a small quantity of dry pollen in the cells, which the bees will remove with impunity. But if the dry pollen is extensive, which is often the case when the bees have died early the previous autumn, it will save the bees a great amount of labour if the combs are cut down to the midrib, and the whole of the pollen removed. The bees will then make new cells on the old foundation, which may again be used for breeding or extracting purposes.]

They are not difficult to manipulate; a knife with a fairly long blade is best for the purpose, and with a little practice the work may be done without injury to the combs, and does not necessitate melting them down. In my own apiary I annually examine all spare combs. Those that are old and discoloured are placed on one side for the melting pot, whilst others that are of good colour and otherwise suitable are treated as above. This plan has the advantage of keeping all combs in stock in good condition.

Is "R. T. W." quite sure that the stocks which died were healthy and free from disease? as that dread pest of bee-keepers, foul brood, is prevalent in some parts of the country, and as it is very infectious great care should be taken in a district where it is known to exist. It is much more common in the South than the North of England.

THE BEE-KEEPER.

SEASONABLE NOTES.

BEE-KEEPERS probably observe the changes in the weather more than the majority of people, as it has an important bearing on successful bee-keeping. Arrangements must be made beforehand, but if the weather is unfavourable the best laid plans will often go astray. How often one hears the remark, "If the weather had been warm and bright what a grand harvest of honey I should have had, instead of which I have to feed my bees to prevent them starving."

It is yet too soon to speak with any certainty as to what the present season will be, but up to the end of April, with four months of the year gone, the outlook is certainly not promising, from a bee-keeper's point of view. We shall have to go back several years to find a spring in which the bees have done so badly. The first few days of April were heralded in with snow, hail, and rain, accompanied by cold north or east wind, and this has continued throughout the month. Bees have made little headway, the brood nest has been contracted, and bee-keepers who expected to have their bees at the swarming point at this date will probably

If the bees died from any disease I would recommend the combs to be melted down, and the frames destroyed. They may, however, be used again if placed in boiling water for a short time, and afterwards cleansed with carbolic acid; but as they may now be obtained so cheaply they are really not worth the trouble and risk. The hives, too, should be well scrubbed with hot water, and afterwards painted inside and out with strong carbolic, which will destroy all the germs of disease. Hives and frames treated in this manner should afterwards be placed in the open air for a few days before being used, otherwise there may be a difficulty in getting the bees to remain in the hive owing to the unpleasant odour. If the bees died from an infectious disease the combs cannot be purified, and if there is the least doubt in the matter it is better to err on the safe side. But with hives and frames it is quite different, for if they are carefully disinfected they may again be used without danger, as shown above. If in doubt write again. — AN ENGLISH BEE-KEEPER.]



•• All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," 8, Rose Hill Road, Wandsworth, London, S.W. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

Gold-laced Primrose (J. F. S.).—There is no doubt a tendency to lacing in the flowers, but the colours lack definition. It is not unlikely that when your plant gains strength it will develop into the Polyanthus form of flowering, but whether it does so or not the variety possesses no commercial value.

Origin of Vegetables (Lecturer).—We cannot tell you what you desire to know. The information could only be acquired by laborious research; but the following records may not be without interest, as bearing on the subject of your note:—"Old Vegetables."—Of vegetables known in very remote times, the Onion is the most conspicuous. As late back as 2000 B.C. it was a great favourite with the Egyptians, and we read, in Herodotus, that there was an inscription upon the great pyramid setting forth the fact that 1600 labourers had been supplied with Onions in one day. Another plant eaten in times almost as remote is the Pea, which has been found in the lake dwellings of Switzerland, inhabited during the ages of stone and bronze. It was well known to Romans, fried Peas being sold during the performances at their theatres. When the Pea was first introduced into England we do not know, but old chronicles make mention of the fact that Green Peas were eaten in the monasteries soon after the Norman Conquest. The Romans, by-the-by, always ate theirs dried. Peas were a great luxury during the reign of Queen Elizabeth, and were eaten with the 'cods' on, when young. At the time of Charles II. they were so dear as to cost £1 a pottle. The Cabbage is but a variant of the common yellow-flowered Cabbage of our seashores. We know this from the fact that the red pickling Cabbage reverts to that ancestral form after a few generations of neglect. This sea Cabbage is also the parent of the Cauliflower, the Broccoli, and the Kale, which parentage the Romans appear to have been aware of, as they always manured their Cabbage gardens with seaweed. The largest plants that they raised were of the kind called Sabellian, one specimen of which is mentioned by Pliny, as having been 3 feet across. Asparagus was sucked by wealthy gourmands more than 200 years before the Christian era. Even the stern Cato was extremely fond of it, and declared that he once cultivated three large heads, whose united weight amounted to the equivalent of an English pound. If one wishes to enjoy a surfeit of the delicacy, let him go to the salt steppes of Northern Russia. Here miles on miles are covered with the heads, upon which horses and cattle feed, eating them like grass. Artichokes, of the kind known as Jerusalem, are mentioned by Dioscorides as having

been eaten during the first century B.C. The Beetroot, the Parsnip, and the Carrot were all Latin vegetables, but of the first only the leaves were eaten before modern times. The first Parsnips we hear of were brought to Rome from Germany, and were served at the table of the Emperor Tiberias, who ate them with honey. They were known to the Anglo-Saxons, who called them 'mad napes,' because eating them when old was supposed to unsettle the reason. The Carrot is mentioned by Theophrastus in his 'History of Plants,' as having been first obtained from Sparta. It was brought to this country by the Flemings. Though our market gardeners have made many attempts to raise the Sweet Carrot from the wild stock, they have all been unsuccessful."

Cucumber Plant (and Soil (A. G. W.).—The sturdy short-jointed stem and thick leathery leaves of the plant are all that could be desired; but the fruit is stunted and curled. There, however, was no disease in the fruit, nor could we find any parasitic organism on any part of the plant above ground. But if the parts in sight were normal, there was something out of sight to the ordinary vision—serious, meaning loss of crop, capital, time, and labour; and we sincerely sympathise with you in your misfortune. This, however, goes but a very little way in anything connected with parasitism, and to find methods of relief the nature of the evil must be traced to its source. Quite healthy to the collar, or where the seed leaves had been, was your plant in the part above ground. On making a transverse section of the stem just below the seed leaves, and on the part that had been in the soil, and holding this up to the light, the woody tissue was found to be slightly brown. Making a longitudinal section, and placing this under the microscope, the hypha of a fungus was plainly visible in the intercellular spaces of the vascular cells, and on two sides the mycelial hyphae had broken through the cellular tissue, and appeared outside the stem. Every endeavour was made to find "fruits" of the fungus, but without success. The mycelial hyphae (web) was that of the smother fungus, *Sclerotinia sclerotiorum*, Mass., of which the conidial condition is frequently suppressed. Following the root stem downwards the discoloration increased in intensity, till culminating in the decayed portion, which, as you say, is at the bottom of the root stem, between the stem and tap root. There the root stem was completely decayed and relatively dry, for this is not a wet rot, and the decay proceeded both downward and upward, chiefly the latter, in the root stem. In this dead part were numerous sclerotia (small black elongated bodies), the resting stage of the fungus, and from which spring the ascophores, bearing the spores of the parasite. Other portions of the roots were decayed, but they only contained mycelium. In other respects the roots and root stem were singularly healthy, and without nodosities, as caused by eelworm; nor were any of these pests found in the living tissues of the roots, but a portion of the decaying stem in a solution of aniline yielded a specimen of the short blunt-ended eelworm (*Tylenchus obtusus*, Bastian). The eelworm was certainly not the cause of the disease. Hyphae of the fungus in the woody tissues, in which the sap ascends, had partially cut off the supply of nutriment, and the fruit, instead of elongating, curled as a natural consequence. The case is what is known to gardeners as root (not collar) canker. The fungoid attack begins on the radicle or tap root. Sometimes it kills the young plants, and they become mouldy. That mould is the conidial condition of the parasite, *Botrytis cinerea sclerotiphila*, Sacc.; yours is simply this, suppressed as before stated, and it also produces a sclerotium, once called *Sclerotium durum*. This we have detected in Cucumber and Tomato seed, and is discernible by the black colour of the seed integument, therefore the malady may go over with the seed. This shows the importance of careful seed saving from only healthy plants. But the parasite usually goes over from year to year in the soil, and has done so in your case, as the roots are infested here and there on the lateral ones at a considerable distance from the radicle, and besides the soil contains sclerotia. You ask for a remedy and prevention in the future. The soil is good turfy loam, full of fibre—a very excellent one for Cucumbers, but it contains both eelworms and the sclerotia of the smother fungus. You may not appreciate our recommendation, as cultivators have an abhorrence of whatever tends to reduce the stores of nitrogen, but we must say that the soil needs, and must have, lime—not magnesian, but best chalk or land lime—and it should be mixed with the soil some time in advance of using it for Cucumbers, so as to part with its causticity and act on the organic matter effectively. In bad cases 10 per cent. may be used, then let lie six months; if 5 per cent., three months; but in most cases 2½ per cent. suffices, and this allows of the soil being used shortly after mixing. On the plants as they are we should not hesitate to place soil around the collar and get roots from the stem, mixing a little air-slaked chalk lime with the old soil without disturbing the surface much, adding some to the fresh soil, or some mineral superphosphate, 37 to 39 per cent. soluble phosphate, three parts; muriate of potash, 85 per cent. purity, two parts; and sulphate of magnesia, one part, mixed, using about 2 ozs. per square yard every fortnight or three weeks, and washing in. To get at the fungus you may use Little's soluble phenyle, one in ninety-six parts water, or 1 gill (¼ pint) to 3 gallons of soft water, which will give value for outlay as a manure, besides possibly killing both the fungus and the eelworm, using it in about the same amount as in an ordinary watering, and repeating occasionally. Some consider this sufficient without using lime, as it acts on the organic matter in the soil, and the plants give quicker and heavier returns. Nitrate of soda has also been used effectively in the ordinary course of watering, but not stronger than ½ oz. to a gallon of water, prepared a short time before used so as to become aired.

Cucumbers Gunned (Juno).—The Cucumbers are not infested by any disease, but are suffering from what is known as extravasated sap, due to excessive vigour, for which we do not know of anything more likely to afford relief than allowing a freer growth of foliage and keeping the atmosphere more evenly moist, also the temperature rather warmer. Only sufficient water should be given at the roots to keep the plants from flagging, but this must penetrate to the drainage, then with the atmosphere not excessively surcharged with moisture, and sudden depressions or fluctuations of temperature avoided, the fruit will swell freely. You may use equal parts by weight of air-slaked chalk lime and soot by measure, applying about 3 ozs. per square yard at intervals of a fortnight or three weeks, covering or mixing with a little soil so as to prevent loss of ammonia. A brisk heat and genial atmosphere, however, are the chief factors in inducing the fruits to develop. Are you certain that the soil at the base of the bed is not dry? If it is while most near the surface the fruits will swell so far and no farther.

Holly Trees and their Requirements (W. W.).—The common Holly (*Ilex aquifolium*) is a native of this country, Europe, and West Asia, and grows in a great variety of soils and situations. We have seen very fine trees of it on sandy loam of the new red sandstone formation, on strong clayey loam of the drift, on gravelly loam of the oolite, and on peaty soil overlying lias. We found the grandest specimen in somewhat shaded places on the slopes of a valley, the soil being a rather strong gravelly loam incumbent on freestone rock. It appears to like a generous soil, but absolutely free from stagnant water, while in very dry soil it is apt to lose its leaves. This may to a certain extent be counteracted by supplying manure, so as to render the soil more moisture-holding, and afford nutrition. We have supplied unhealthy trees with liquid manure from a farmyard tank after cutting their heads into form at the end of April, a dish of soil being formed about 1 foot outside the radius of the cut-back head, and 4 gallons of the liquid applied per square yard. The liquid manure was given during May, June, and July, at intervals of about three weeks. In two or three years the trees were pictures of health and beauty. Thus it was lack of nutrition in that case from which the Hollies suffered. On a similar soil, about 4 feet deep overlying chalk, Hollies grew into timber-like trees, 30 to 40 feet in height, remarkably profuse in foliage of a deep green colour, and persistent in retaining it. Indeed, it was a Holly soil, yielding what this plant requires, as shown by its ash constituents:—

Potash (KO)	...	...	...	...	...	19.16
Soda (NaO)	...	...	...	...	...	5.08
Lime (CaO)	...	...	...	...	...	35.68
Magnesia (MgO)	...	...	...	...	...	20.58
Iron (Fe ₂ O ₃)	...	...	...	...	...	0.85
Phosphoric acid (PO ₅)	...	...	...	...	...	5.03
Sulphuric acid (SO ₃)	...	...	...	...	...	1.03
Silica (SiO ₂)	...	...	...	...	...	7.86
Chlorine (Cl)	...	...	...	...	...	0.24

The chief mineral elements required are, therefore, lime, magnesia, potash, and silica, and it is likely that your soil may be deficient in lime. Where Hollies did not grow well we added some old mortar rubbish, and a good dressing of manure, trenching the ground about 2 feet deep, mixing the whole well together, and the plants did well afterwards. But most good soils will grow Hollies, the common species being found on nearly all soils, and its innumerable varieties are well known and extensively cultivated. It submits to almost any amount of pruning, but this should be practised either in September or in April, both in the case of trained trees and the clipping of hedges. Transplanting is best done at the beginning of May or early in autumn, when there is sufficient time for new roots to be formed before winter. It does not transplant well when old, and trees of large size had from nurseries require frequent removal to enable their safe transplantation. For fences, young plants are best, or even seedlings, but these take eight or ten years to make a fence 4 feet high. It pays to have the ground trenched to the depth of 2 feet, and about 3 feet in width, incorporating a quantity of manure with it at the same time. This is best done some time previously, say in autumn, as it gives time for the loosened and up-turned soil to get mellowed and sweetened, as also for the manure to become decomposed; but it should be considerably decayed when used. The soil will then be in good order for planting in May. As for Hollies growing well on an old battle field of Cromwell's there may be something in the bones of ancient warriors supplying phosphate of lime, but on his great field—Marston Moor—there is nothing very remarkable in the way of Hollies or other trees, yet the Nidd valley is remarkably good land.

Names of Fruits.—Notice.—We have pleasure in naming good typical fruits (when the names are discoverable) for the convenience of regular subscribers, who are the growers of such fruit, and not collectors of specimens from non-subscribers. This latter procedure is wholly irregular, and we trust that none of our readers will allow themselves to be made the mediums in infringing our rules. Special attention is directed to the following decision, the object of which is to discourage the growth of inferior and promote the culture of superior varieties. In consequence of the large number of worthless Apples and Pears sent to this office to be named, it has been decided to name only specimens and varieties of approved merit, and to reject the inferior, which are not worth sending or growing. The names and addresses of senders of fruit or flowers to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. They should be sent on the

first indication of change towards ripening. Dessert Pears cannot be named in a hard green state. (G. G.).—1, Bramley's Seedling; 2, Northern Greening, 3, unknown; 4, Catillac. (D. S.).—1, Beurre Rance; 2, Moss's Incomparable; 3, Northern Greening. (R. D. J.).—1, Easter Beurre; 2, Catillac. (N. N.).—The Apple is Scarlet Leadington, an old and valued Scottish Apple possessing much of the character of the ancient Catshead.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, at being often difficult to separate them when the paper is damp. (S. P. T.).—*Cerasus* (Prunus) Padus. (A. L. K.).—*Prunus nana*. (S. H.).—*Iberis correaefolia*. (C. A.).—1, *Doronicum plantagineum excelsum*; 2, *Begonia metallica*; 3, *Lycium europæum*. (Inquirer).—*Dendrobium chrysotoxum*. (C. C. S.).—1, *Phlox setacea*; 2, *Spiræa hypericifolia*; 3, *Spergularia marina*; 4, *Genista racemosus*.

COVENT GARDEN MARKET.—MAY 5TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, $\frac{1}{2}$ sieve	1	3	to	2	Lemons, case	11	0	to	14
Filberts and Obs, per 100lb.	0	0	0	0	Plums, $\frac{1}{2}$ sieve	0	0	0	0
Grapes, per lb.	4	0	4	6	St. Michael Pines, each	3	0	8	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Asparagus, per 100	0	0	to	0	Mustard and Cress, punnet	0	2	to	0
Beans, $\frac{1}{2}$ sieve	0	0	0	0	Onions, bushel	3	6	4	0
Beet, Red, dozen	1	0	0	0	Parsley, dozen bunches	2	0	2	0
Carrots, bunch	0	3	0	4	Parsnips, dozen	1	0	0	0
Cauliflowers, dozen	2	0	3	0	Potatoes, per owt.	2	0	4	9
Celery, bundle	1	0	0	0	Salsafy, bundle	1	0	1	0
Coleworts, dozen bunches	2	0	4	0	Seakale, per basket	1	6	1	0
Cucumbers	0	4	0	8	Scorzoneria, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Shallots, per lb.	0	2	0	0
Herbs, bunch	0	3	0	0	Spinach, pad	0	0	4	0
Leeks, bunch	0	2	0	0	Sprouts, half sieve	1	6	1	0
Lettuce, dozen	1	3	0	0	Tomatoes, per lb.	0	4	0	9
Mushrooms, per lb.	0	6	0	8	Turnips, bunch	0	3	0	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (various) doz.	6	0	to	36	Foliage plants, var. each	1	0	to	5
Arum Lilies, per dozen	9	0	18	0	Fuchsias, per dozen	8	0	10	0
Aspidistra, dozen	18	0	36	0	Genista, per dozen	6	0	10	0
Aspidistra, specimen plant	5	0	10	6	Hydrangeas, per dozen	9	0	12	0
Azalea, per dozen	18	0	36	0	Lilium Harrissi, per				
Cinerarias, per dozen	6	0	9	0	dozen	12	0	18	0
Cyclamen, per dozen	8	0	12	0	Lycopodiums, dozen	3	0	6	0
Dracæna, various, dozen	12	0	30	0	Marguerite Daisy, per				
Dracæna viridis, dozen	9	0	18	0	dozen	6	0	9	0
Erica, (various) per dozen	9	0	18	0	Mignonette, per dozen	6	0	8	0
Euonymus, var., dozen	6	0	18	0	Myrtles, dozen	8	0	9	0
Evergreens, in variety, per					Palms, in var., each	1	0	15	0
dozen	4	0	18	0	„ (specimens)	21	0	63	0
Ferns in variety, dozen	4	0	18	0	Pelargoniums, per dozen	9	0	15	0
Ferns (small) per hundred	5	0	8	0	„ Scarlet, per doz.	4	0	8	0
Ficus elastica, each	1	0	7	0	Spiræa, per dozen	6	0	9	0

Bedding plants and roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Anemones, dozen bunches	1	6	to	3	Mignonette, dozen bunches	3	0	to	6
Arum Lilies, 12 blooms	2	0	4	0	Narciss, (various), dozen				
Asparagus Fern, per bnch.	2	0	3	6	bunches	1	3	2	0
Azalea, per dozen sprays	0	6	0	9	Narciss, Yellow, dozen				
Bouvardias, bunch	0	6	0	9	bunches	1	0	2	0
Carnations, 12 blooms	1	6	3	0	Orchids, var. doz. blooms	1	6	12	0
Daffodils, double, dozen					Pelargoniums, 12 bunches	6	0	9	0
bunches	1	6	3	0	Polyanthus, dozen bunches	1	0	2	0
„ single, doz. bunches	2	0	4	0	Pyrethrum, dozen bunches	1	6	3	0
Eucharis, dozen	3	0	4	0	Roses (indoor), dozen	0	9	1	6
Gardenias, dozen	2	0	4	0	„ Tea, white, dozen	1	0	2	6
Geranium, „scarlet, doz.					„ Yellow, dozen (Niels)	1	6	4	0
bunches	4	0	6	0	„ Red, dozen blooms	1	6	4	0
Lilac, White (French), per					„ Safrano (English),				
bunch	8	6	4	0	dozen	1	0	2	0
Lilium longiflorum, 12					„ Pink, per dozen	4	0	8	0
blooms	3	0	4	0	Smilax, per bunch	5	0	7	0
Lily of the Valley, 12sprays,					Tuberose, 12 blooms	1	0	1	6
per bunch	0	6	1	0	Tulips, dozen bunches	2	0	6	0
Maidenhair Fern, per dozen					Violet Parme, per bunch	3	0	4	0
bunches	4	0	8	0	„ per doz. bunches	1	0	1	6
Marguerites, 12 bunches	2	0	3	0	Wallflowers, dozen bunches	1	6	4	0



“TILL THE DOCTOR COMES.”

THIS was the title of a most excellent little book we once met with years ago. It was what one might call “a first aid.” There is with even the best informed so much ignorance about the symptoms of common diseases, and in accidents it is so easy to lose one's wits altogether, that a book of this kind is most useful,

Mind, when the doctor has been and given his orders the book should be put away; two authorities, however good, should not be consulted at once, and the living man is better than the printed words. Circumstances have led us the last week or two to consider (practically) the complaints animals of the farm are most liable to.

We live many weary miles from a good "Vet.," and horses especially are often quickly ill, and unless promptly treated soon succumb. As a rule the foreman has some rude knowledge of horse physic, and may often be trusted to doctor an old cow; but the best of them work much by rule of thumb, and pin all their faith (and the measure of that faith is great) on some well-advertised nostrum, which, if not actively harmful, is likely to do little or no good, costs money, and is the cause of waste of valuable time. It is so common to hear a man say he will try such and such a remedy, because he has "heard tell on it doing a sight o' good to Tom Smith's auld meer, or that it browt roond Bessie Lane's, coo that was a sight warse nor this un." In all probability the cases were not a bit similar. The man tries his hand, finds the patient does not improve, and then grudgingly sends for the farrier.

One of our greatest veterinary surgeons, till quite lately the head of his profession in England, we mean Professor Brown, has been alive to all this, and in a carefully written paper gives many practical hints, most valuable as coming from a man of his standing.

The first subject of which he treats is a wound. How dearly people love ointments, plasters, and "messments" of various sorts is seen every day. They are so anxious to assist Nature, and generally so irritate and aggravate the sore that it takes twice the proper time to heal. Banish all such rubbish from your drug cupboards. See that the wound is clean, free from dirt or other foreign matter, close it up carefully, cover with a little carbolised cotton wool. Nature will do the rest if you keep off germs from without. A horse is lame; do not bother to locate the trouble in the shoulder; look for it in the foot. Remember how much the foot is "put upon," so to say; think of the constant shoeing, sometimes by unskilful men; think of the wear and tear on the 'ard 'igh road.

If there is lameness in a fore leg (especially) remove the shoe and pare the hoof carefully, press with the pincers, and in all probability you will find an abscess, caused sometimes by a carelessly driven nail, at others from contact with a hard, sharp stone.

The matter must be got away by making a small opening, and after soaking the foot in hot water a dressing of tar and tow should be placed on the wound. The shoe should be lightly nailed on again.

The skin of the legs in badly regulated stables is subject to various disorders. Prevention being better than cure, we will mention the ailments, and then say how they may be avoided. Cracked heels and mud fever come first. Horses are brought in after their work oftener with wet legs than dry, plastered up with mud and clay and bits of grit. Wash is the axiom of the stable boy, the drying process he leaves to Nature. The washing is well enough, but takes too much natural heat out of the system if the horse has his own legs to dry. It is the standing quietly in the stable that does the harm. Wash, if you will, in a pond, and the cold water does not do the harm that the hot would, and the walk home after the bath assists the drying process. Hunters' legs are bandaged till the mud is dry enough of itself to brush out. We do not keep flannel bandages for cart horses, but hay bands are a cheap and handy substitute.

If there are cracked heels or mud fever exists, a remedy is found in a mixture of eight parts vaseline with one part of white lead or oxide of zinc.

A bruise freshly made, and before any swelling has come on, will be benefited by a cold lotion, but the application must be continuous. Where there is heat and inflammation hot fomentations are absolutely necessary. A bruised wound cannot heal

without first making some discharge. Carbolic acid and water make the safest and easiest of remedies; one part carbolic acid to a hundred parts of water.

Sprains are a very common source of lameness. Muscles, ligaments, and tendons are overstretched by violent movements, inflammation and swelling follow. A ligament or muscle once sprained is very liable again to give way, and one can hardly ever feel perfectly sure of absolute soundness in the limb affected. Cold water and rest will do wonders, but the cold water applications must be regular and frequent, and the rest long.

In some cases blistering becomes necessary. Then ointment of the biniodide of mercury is most useful, and here a farmer's doctoring must cease, as anything of firing or setoning is only to be left in the hands of a skilful operator; indeed, we hear much less nowadays of firing than we used to do say twenty years ago. There is material, and more than material for a paper on diseases of the digestive organs, which must be kept over for a future day.

WORK ON THE HOME FARM.

The Mangolds have not been drilled yet, as our field to be devoted to them lies somewhat low and near water, and is liable to suffer from May frosts. We once drilled Mangold in it in April; the plants came up quickly, but were killed by frost, except a few under the shade of some trees. We are steeping the seed to soften the husk, and shall now get it in at once.

The weather has been fine overhead, but very cold; nothing has grown much except Wheat, and that has had its exception, the best piece in the parish having begun to turn yellow. The fields which have not been too thick or forward are now beginning to look really well and decidedly promising.

Pastures are worse than ever, sheep are lower, the fairs have been disastrous, nothing but cattle nearly fit for the butcher meeting with anything like a ready sale. Potatoes are a little dearer, about 10s. per ton. We have, however, to be thankful for even that small mercy.

As regards farm work, we have brighter prospects to record. Much progress has been made with the working out and getting off of twitch. Fallows were less foul than we have seen them in most seasons, and although little or nothing but ploughing could be done to them in the autumn the task of cleaning has not been very formidable.

Twitch fires have been visible in all directions the last few days, and most fields are about ready for ploughing. If the weather should become very dry this will be most advantageous, for the absence of any necessity for further cleaning will enable us to keep the land quiet, and so retain its moist condition until Turnip sowing.

If the land be light and friable we would not move it at all after ploughing, but if it be rough and cloddy we would plough again in a fortnight and roll after the plough. In fact, for rough land the motto is, "Plough and roll," and if once is not enough "plough and roll again." The spring tooth cultivator is splendid for pulverising the soil, and on light and medium soils is a most valuable implement, but we cannot do without the plough yet.

We hear of serious loss of the Wheat plant where chilled ploughs were used for ploughing lea. This is the one operation they are quite unsuited for, and we have warned our readers against using them for the purpose.

METEOROLOGICAL OBSERVATIONS.

OAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1897. April and May.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday .. 25	29.882	47.4	44.0	N.E.	45.1	55.9	36.8	88.4	32.2	—
Monday .. 26	29.853	52.9	48.3	N.E.	45.4	66.6	37.6	108.9	33.1	—
Tuesday .. 27	29.935	50.9	49.7	N.	47.9	67.3	44.0	85.1	37.2	0.155
Wednesday 28	30.028	51.9	51.2	N.	48.9	66.0	45.5	99.9	38.7	0.119
Thursday.. 29	30.106	52.2	50.4	W.	49.1	65.4	46.3	108.2	39.3	—
Friday .. 30	29.804	55.7	50.5	S.W.	50.3	58.6	44.9	78.5	40.1	0.202
Saturday .. 1	29.897	47.8	44.2	N.	48.4	59.8	37.8	107.9	32.9	—
	29.926	51.3	48.3		47.9	62.8	41.8	98.7	38.2	0.476

REMARKS.

25th.—Generally sunny, but cloudy intervals.

26th.—Bright and mild throughout.

27th.—Sun visible through haze or slight fog almost all day, but no bright sunshine; thunder from 5.45 P.M. to 7 P.M., with spots of rain.

28th.—Foggy all morning, thick early, and yellow, with darkness, from 11 A.M. to noon. Rain from 7 A.M. to 9.30 A.M., and heavy rain at 8.30 P.M., other slight showers at times; generally sunny in afternoon.

29th.—Overcast till 9.30 A.M.; generally sunny after.

30th.—Sunny early, overcast from 10 A.M., steady rain from 1 P.M. to 5 P.M., and spots of rain in evening.

1st.—Brilliant early, and generally sunny all day.

Another average and unnoteworthy week, the storm on April 27th being of little moment, except in the South of London.—G. J. SYMONS.

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6 " " " " " 3/6 and 5/6.

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Journal of Horticulture.

THURSDAY, MAY 13, 1897.

GRAPE THINNING. TEN COMMANDMENTS.

I RECENTLY received a copy of "Instructions for Thinning," printed for the guidance of those who use the scissors during the long Grape thinning time in one of the greatest commercial Grape-growing establishments in Britain. The trite remark of the sender, that they seemed to embody the "Ten Commandments in Grape Thinning," induced me to choose that sentence as a sub-heading for these notes. So good are the instructions referred to that I think they should be reproduced in the *Journal of Horticulture* for the benefit of the many readers who require definite information about this important operation connected with Grape growing. Below are the instructions, which all young gardeners should carefully read, and comprehend their significance.

INSTRUCTIONS FOR THINNING.

- 1, Take hold of the bottom of bunch with the left hand. Don't touch it anywhere else.
- 2, Begin thinning at the bottom and work upwards.
- 3, Take out all inside berries, cross berries, and small berries first.
- 4, The berries you leave should be the big ones that point straight out, and the berries that stand out most are best.
- 5, The berries should be left about three-quarters of an inch apart.
- 6, Don't rub the bunches with your head or anything else, because it injures the bloom on the berry and makes the Grapes look shiny when they are ripe.
- 7, Cut the stalks in close.
- 8, Keep your scissors clean; they will cut better.
- 9, Don't put your scissors through the bunch to thin the other side; you should move round the bunch.
- 10, Always thin the bunches with the biggest berries first.

It would, I think, be difficult to draw up a better code of rules for the guidance of those who work in market-growing establishments than the foregoing, but in private gardens, especially where exhibiting is practised, the aims of the cultivator are somewhat different. The market grower requires medium-sized compact bunches, the private grower a good supply of a similar type, but also a considerable number of large well-developed bunches to show what can be done by special culture. I propose, therefore, to enlarge upon the subject, as well as pen a few comments upon the market growers' instructions.

Rule 1 I do not quite agree with. When thinning a bunch which has not set well at the bottom it is a good plan to hold it by the point, as of course it must be removed when the bunch has been thinned. The same remark applies in cases where the terminal berry is so long that it requires removal to obtain a compact point, as few things look worse than to see the bottom berry hanging loosely when the Grapes are ripe. Those who wish to become expert Grape thinners should hold small and medium-sized bunches by the footstalk, just above the shoulder. With a little practice they will soon find it is not necessary to touch it with the hand in any other part. I have thinned thousands of bunches while holding them in that way, and although I do not wish to pose as an egotist I flatter myself I can thin Grapes as neatly and quickly as most experts. There are few gardening operations I like better, and many times I have spent fifteen hours a day at the actual thinning.

In dealing with large bunches it is necessary to use a stick about 8 inches in length, one end of it forked, as this is sometimes useful to hold up shoulders or steady the bunch, at others the straight end will be found the more convenient.

Rule 2 is definite and good—no one, I think, would take exception to it; 3 and 4 give important information, conveyed in such plain English that it would be difficult for anyone to mistake their meaning or err on the points treated of if the teaching is followed.

Rule 5 is, of course, only intended as a general instruction suitable for the majority of varieties. Such sorts as Gros Colman and Gros Maroc, when well grown, should be left $1\frac{1}{2}$ inch apart halfway up the bunch, a little closer at the points; and in the case of the last named variety about an inch apart on the shoulders, as the footstalks lengthen considerably there. It is seldom that Buckland Sweet-water requires any other thinning than that of removing the small berries, as the footstalks lengthen so greatly that it is often difficult to get a well filled bunch. Foster's Seedling, on the other hand, produces berries on short footstalks so freely that much careful thinning is needed; but they should seldom be thinned to more than three-quarters of an inch apart, as the berries are oval in shape and not of the largest size. Madresfield Court often produces very large berries, and though the footstalks are short they ought not to be left more than an inch apart on account of their shape; all berries in the centre of the bunch ought, however, to be removed. Black Hamburgs differ greatly in form of bunch. In some the footstalks are long, and the whole bunch is inclined to be loose; but little thinning is then required upon the shoulders, for although the berries drop when they begin to swell, as they increase in size they force each other upward, and in time quite fill out the shoulders. Other forms of Hamburgs are more compact in bunch, and therefore need thinning more freely, especially at the lower part.

Muscats ought not to be thinned till the berries commence swelling freely, those that fail to enlarge can then be removed, and where gaps occur the berries around ought to be left closer together, leaving them at an average distance of three-quarters of an inch apart. A few weeks later, if looked over again, the berries not required can be removed. Rules 6, 7, 8, 9, and 10 contain instructions which every Grape thinner should learn by heart and act upon.

In market-growing establishments the shoulders are invariably removed in order to secure compact examples, which travel well. No instructions on this point were therefore included in the printed form already dealt with, nor upon the management of large bunches for exhibition purposes. These are matters I will now deal with, as they require special treatment. Gros Guillaume I should say produces on an average larger bunches than any other Grape. These are often very handsome in shape, though frequently the largest clusters are somewhat loose and by no means shapely, but it is surprising how they may be gradually moulded into form by dexterous manipulation.

Before attempting to thin bunches of this description I always tie them out thoroughly, commencing at the top of the bunch.

The main shoulders have each in turn a piece of raffia fastened around the stem, taking care that the tie is loose enough to allow for the swelling of the stem; the shoulder is then drawn up to an horizontal position, and the other end of the grass fastened to the trellis on which the Vines are trained; a bow tie should be made, as throughout the growing season it is sometimes necessary to raise or lower the shoulders slightly. When the main shoulders have been treated in this way some of the larger branchlets which spring from them require ties too, so that the whole of the berries are evenly placed over the top of the bunch, right up to main stem. If the shoulders have long footstalks, and are consequently without berries for a couple of inches from their bases, they may be by exercising care and judgment crossed or coiled around the stem of the bunch, so that when the berries are of full size they will form a compact mass; in this way loose bunches may be converted into solid ones. I should have previously stated that large shoulders often need three supports, one near the point and the others equidistant from it, when the top of the bunch is completed. The smaller clusters beneath should be tied up to fill blanks and secure the desired shape. This done, little thinning is needed beyond taking out a berry here and there, also the very small ones.

Trebbiano requires the same treatment, with the exception that more thinning is usually needed than in the case of Gros Guillaume. Muscats and Foster's Seedling do not often require tying-out, but in some instances a distinct advantage is gained by doing so. When Black Hamburg and Muscat Hamburg produce large bunches it is generally necessary to resort to tying; on the other hand Black Alicante, Gros Colman, Lady Downe's, and other varieties with similarly stiff stems do not require artificial supports.

It should always be borne in mind that tying-out is done with the object of producing large bunches; if these are not required, severe thinning must be practised to put them into shape. Medium-sized bunches often have one good side shoulder. In most cases I remove these, but in some they are left, as they give the bunches the little extra weight needed to bring them up to exhibition size, and when well staged such bunches look well on the show boards.

Grape-thinning may to some seem tedious work, but I know full well there are thousands who find it a fascinating art; the latter will have fixed in their mind's eye the shape they wish each bunch to eventually assume, and by working on the lines above indicated will, I think, generally be able to closely approach, if not attain their ideal.—POMONA.

WILDERNESS GARDENING.

WOODS, copses, glades, and hedgerow banks have charms at all times to the lover of Nature. In the spring months the beauty of the "palms" (male catkins of the Goat Willow, *Salix caprea*), common Primrose, Sweet or even Dog Violet, Wood Anemone, Sweet Woodruff, strong smelling Bluebell or Wood Hyacinth with, in places, Daffodil, Forget-me-not, and Lily of the Valley, excite admiration when seen in Nature's profusion. Thus the wildlings of the hedgebank, copse, and wood may often be found in urban and suburban gardens, for it is not enough to cull flowers by the hand and armful, but roots must needs be borne off by basket and bagful as souvenirs of rural wanderings at holiday times. This, deplorable as it is in many cases, has led to spring flower gardening, for when the massing system came into force the common flowers of our gardens were almost wholly neglected, and but for their being cherished in old-fashioned and cottage gardens would have been lost.

The herbaceous border is but an outcome of collecting from various sources and many lands. The massing of flowers is the method of Nature, which affords a succession of beauty in different form and place throughout the season. Honeysuckles, wild Roses, and Clematis are no less charming than the earlier and more lowly spring flowers, and what more delightful than banks and mountains of "May?" while the Spiky Mullein and Foxglove, with purple and white masses of Willow Herb (*Epilobium*) yield to few pampered exotics in stateliness and charm during the summer.

In the autumn what excels in relish the self-picked Blackberry and the Hazel Nut? Where, in winter, have we such greenery as

in the Ivy and the brilliant hue in berries of the Holly? Nature is a continual feast—things of beauty are borne in her lap at all seasons, not in one place but in many, for does not the wet ground glow with the golden cups of the Marsh Marigold, the yellow-eyed blue Forget-me-not, and charming Orchis? Even the water bears its yellow and white Lilies, Arrow-heads, Bullrushes, and Reeds, with Violets and Soldiers, while high and dry hillsides are aglow with purple Heather, and on shady banks are graceful Ferns.

Pictures of Nature's profusion in towns are not uncommon. Many cottage gardens glow with Winter Aconite and Snowdrop, Primrose and Daffodil, Woodruff and Forget-me-not in spring time. Honeysuckle for sunny and Ivy for shaded places are the choicest of climbers, and in nooks and corners the Male and Lady Fern dwell in sweet harmony. Town gardens have their spring beds and borders, many of their occupants improved forms of native plants. Summer bedding gives place to winter, and in most gardens there is a bit of Nature—the pond of aquatics, the fernery, and the rockery for alpine. Then there is the shrubbery and lawn, a sort of modified wood, copse or glade, so that there is not much difference after all between an English woodland and a British garden in the natural. Indeed, it is but a miniature with the gems placed in the best setting, so as to accord with the refinements of the home.

But in the wilderness there is a sort of entire abandonment of culture and of trimness, which is really the measure of difference between the well-kept pleasure ground or flower garden. The wood, copse, and glade are improved by the introduction of hardy bulbs and plants, with climbers and trailers, as well as flowering shrubs or trees. The practice is very old—the true old English style, which has been at times overlooked, and to some extent over-run by the stiff and formal Dutch, but still the most satisfying, and returned to after a time, for it has the property of wearing well, and may be described as the supplanting of rubbish by "things of beauty" in their respective seasons. Such is the wilderness I have in view, not the blind following and imitation of Nature, but the introduction of plants that will increase in size, and form bolder groups as each year comes round, improving the scene and increasing the sources of pleasure.

First of all comes the glade, the ideal place for bulbs. Winter Aconites, Snowdrops, Crocuses, Daffodils, Snake's Head Lilies (*Fritillaria*), Dog's Tooth Violets, Grape Hyacinths, Squills, Solomon's Seal, Meadow Saffron, and no end of other things that never look half so well on bare ground as springing from grass. Bold irregular groups, broad in places, narrow in others; isolated knots, groups of these as if self-sown or Nature-planted, regard being had to height and harmony of colour, never losing sight of reserving plenty of setting or grass to alike show off the whole to advantage, and allow of walking amongst them.

Meadow Orchis, dotted here and there with English Iris, yellow Allium, blue Wood Anemone, and the scarlet Windflower come out grandly in the glade. What more beautiful on grassy slopes than Primroses—not all yellow, but some of the coloured, even the truss forms in nearly all hues, and obtained by simply sowing the seed, while Cowslips and Oxlips are nowhere more at home. The hardier Lilliums need not be lost in the wilderness. Red-hot Pokers (*Tritomas*) shine amid its greenery, and once the autumn Anemones (*A. japonica* and var. *alba*) get established there are few flowers to excel them.

All the foregoing can be grown in grass that is mown two or three times a year, as the shave over such plants as Primroses is never so close by the scythe as to seriously damage them. The first mowing, however, must not take place until the Daffodils have died down, and on no account must the grass be cut over any plant whilst it has green leaves that would also be removed. In mowing, therefore, regard must be had to this, which is not at all difficult when the plants are in groups and stand out boldly. Any grass growing amongst herbaceous plants should be removed frequently with the hand for a time, then the naturalised plants will eventually overpower the grass instead of this overrunning them.

In the copse, a sort of thin wood, there are places for such plants as Pampas and other stately Grasses. The Willow Herb is more ornamental than Nettles, and the perennial Sunflowers will display the "survival of the fittest" by smothering coarse-growing weeds. Polygonums are equally assertive, possessing stately growth, handsome foliage, and large panicles of white flowers. *Pyrethrum uliginosum* takes care of itself, as also do the Michaelmas Daisies. What for colour can match the herbaceous Peonies and the Oriental Poppy? For bold characters in leafage *Rheum officinale* has few superiors. Variegated Comfrey tells well amid greenery, and Globe Flowers (*Trollius* species) out- rival Buttercups in grass. *Veratrum* grow tall, and have pyramidal spikes of white, black, and green flowers. The Golden Rods grow anywhere. *Hypericums* do well in partial shade, *H. calycinum* or

Rose of Sharon forming excellent cover, and having bright yellow flowers in summer and autumn.

Places may be found for Honeysuckles, rambling Roses, and the commoner Clematis, near unhealthy bushes or trees, and becoming mounds or cones of beauty. The Dog Rose loses none of its charms when Sweet Briar is near, and even shows with greater effect where *Rosa rugosa* is present, by contrast both in flower and leaf. As much cannot be said for the double-flowering Cherry associated with the wild Gean, but *Pyrus spectabilis* goes well with the blossom of the Crab, while the fruits of ornamental Crabs are charming. The Almond blends well with Blackthorn blossom, and the dark foliage of *Prunus Pissardi* makes a pleasing distinction between the green of the Sloe. Pink and scarlet Thorn blossom enhance that of the pearly white May. Hazel bushes show all the better for being in contrast with the purple-leaved variety. *Berberis dulcis*, *B. Darwini*, and *B. stenophylla* provide charming tints of contrasting yellow with the common Barberry. The White Beam tree adds to the beauty of the Bird Cherry. Weigelas associate well with Dogwood and Laburnums. Lilacs always impart beauty to the copse, and Mock Orange throws a delicious fragrance over all. White Broom enhances the effect of the yellow, and the Snowball renders Mountain Ash more lovely. The yellow, white, and red Ribes are more charming than the wild Gooseberry. *Leycesteria formosa* produces dark berries in the autumn, which hang in long bunches like Grapes, and is distinctly ornamental. For draping with a warm glow of colour shrubs of the copse order few plants equal *Tropæolum speciosum*, and to follow this the bright foliage and festoons of the Virginian Creepers on trunks of effete trees have a most pleasing effect.

Then there is the wood. It, too, may be improved by having in the open places great breadths of Winter Aconites, Snowdrops, Daffodils, and others of the flowers mentioned under the glade, with common Bracken introduced where there is none, also other Ferns in the shady parts, something different being added to the ubiquitous Bramble. Periwinkles will grow in the densest shade, so that there is no reason for not having cover. Even Ivy is much better than nothing, including groups here and there of the variegated forms for contrast and change. In most woods there are some not very thriving trees, and Ivy generally claims them. If these are in open places the Traveller's Joy will clamber over them, and give a pleasing change. I have in view a Spruce Fir, 50 feet height, overtopped by this climber, which in summer is a tower of beauty. Great woods of Firs, not one native except Scots, are extremely monotonous when they pervade valley, slope, and hill. British trees outlive and outshine in beauty and usefulness those introduced from other climes, yet we need them all, and have place for each, not to wholly displace, but to associate with and enhance the beauty of our native trees.—G. ABBEY.

SEAKALE CULTURE.

THE culture of Seakale, or rather the production of Seakale roots in quantity annually for forcing and for a late supply, is by no means a difficult task, and for the information of an inquiring correspondent I am pleased to give a short account of the simple method employed here. As far as I am aware there is nothing new in the cultural methods adopted, or that it differs from that employed in the majority of other gardens where Seakale is largely grown. For many years I have entirely discarded the use of pots and manure as a means of forcing, as this necessitated growing the roots on the same piece of ground for several years, and the unsightliness of heaps of manure could scarcely be permitted in the kitchen garden proper, and must of necessity be relegated to some out-of-the-way place. By planting annually a large stock is easily raised, from which a good supply of Kale may be maintained for at least six months—namely, from early in November to the May following.

The correspondent mentioned wishes to know (1) when the cuttings are taken, (2) when planted, (3) where blanched, if not in the open ground, (4) whether pots are used, or leaves only? I will, therefore, begin the season with the first lifting of fully developed crowns early in October, and finish with planting and other cultural details. As early forced Seakale is usually appreciated roots are lifted in the autumn as soon as the leaves will part from the crowns, which they usually do after a few degrees of frost; and as roots of all kinds start into growth the quicker after a perfect rest, they are forked out as cleanly as possible with all the rootlets attached, and allowed to lie on the surface for a few days, and should a frosty night or two occur so much the better. These roots are introduced to a dark, warm, enclosed end of the Mushroom house, and planted closely together in light soil. The early lifted crowns take the longest time to produce Kale fit for use, but the first or second week in November is about the usual time for

starting the supply, after which a regular succession must be maintained.

All the rootlets are cut away about half an inch from the base, and as the crowns are lifted all these are saved, placed in a heap, and covered with some half-decayed leaves, to preserve them in a fresh and plump condition. As the winter draws on, and danger of severe frosts become likely to impede lifting, a good portion of the crowns are taken up, the rootlets trimmed off and put away, the crowns laid in leaf mould, out of the reach of frost, or where they can be easily got up, and introduced to the Mushroom house at intervals of about five days.

PREPARATION OF THE SETS OR CUTTINGS.—During bad weather in December and January the rootlets that are to form the stock for planting the following season are selected and prepared. As the largest eventually make the strongest and best crowns, these are first chosen. Many are as large as a man's forefinger, a few larger, and none is used less in size than double the thickness of an ordinary cedar pencil. They are cut into sets or cuttings about 5 inches in length; the thicker end, where the crown will form, being cut straight across, the other or planting end with a sloping cut downwards. After preparing thus some are stood closely together in boxes of sandy soil, just level with the crown end, and others in similar soil or leaf mould in any out-of-the-way corner, and both left outside, but sheltered from frost until planting time arrives.

Before describing planting we will return to the crowns, about a quarter or rather less in my case, that remain to be dug. These are the crowns that produce the latest supply of Kale, and they are not lifted until just starting into growth, or about the middle of March usually. Some are simply planted closely together in a heap of leaf mould in some sheltered corner and covered with similar material to blanch, while the remainder, about two-thirds, are laid in in rows closely together in a cool north-east border, just covering the crowns with soil, over which, for blanching, is placed a bed of half-decayed leaves about a foot in thickness. This is the latest supply, and produced in this way Kale may be cut some weeks later than when blanched in the ground where it has been growing; but to keep it as late as possible I find it must not be lifted earlier than the time mentioned above. Some crowns treated in this way are still supplying very useful Kale, and will continue to do so for another week.

PLANTING THE SETS.—Assuming that a piece of ground in a well-exposed quarter of the garden has already been prepared by trenching and manuring, we will now return to the sets prepared for planting. Those in the boxes of sandy soil I generally plant a week or two earlier than the others, or about the end of March, if the soil is in a suitable condition. These by this time will have callused over and have produced numerous small crown growths, which if long enough should be reduced to one before planting. After the piece of ground has been trodden to break down lumps, and raked over to remove stones and rubbish, shallow drills are drawn out 15 inches apart.

When this is done a surface sprinkling of wood ashes and soot is given in the proportion of about six of the former to one of the latter, and the sets planted in these rows with a dibbler at 15 inches apart in the row. The crown of the set when planted should be just under the surface. When growth has started the ground is hoed, and the principal after culture required is to keep the quarter free from weeds, to look over the crowns, and remove surplus ones where more than one has started from each cutting. Another dressing of wood ashes and soot, with a little salt added, may be given before the foliage covers the ground much between the rows to assist a quick and strong growth, and if the summer be dry an occasional soaking of water applied will be of much assistance.—C. HERRIN, *Dropmore*.

[Our correspondent has sent us a sample of Seakale, than which no better could be desired. It is excellent.]

STRAWBERRY ROYAL SOVEREIGN.—It is only a short time ago since this Strawberry was first placed before the public. Even then competent judges were agreed that considering its splendid cropping properties, its handsome fruit, and its excellent flavour it would most assuredly come into great favour. This has proved to be the case, for it is now being grown in almost all gardens where Strawberries are largely cultivated, and it has more than fulfilled its early promise. By many growers it has been placed in the first rank, and amongst these may be mentioned Mr. Wythes of Syon House, by whom it is utilised as a second early variety for pot culture. This cultivator has a stock of 1000 plants this season, and their extraordinary productiveness has led to the decision that the number will be doubled for next year's supply. There are houses and shelves of Strawberries at Syon, the plants being in perfect health, and amongst the whole collection Royal Sovereign stands out conspicuously as a variety worthy of its name and fame.—D. R.

AVERY HILL.

TRAVELLERS on the North Kent line of the South-Eastern Railway will doubtless have often noticed on their left hand, between New Eltham and Sidcup stations, a handsome red brick mansion with a magnificent domed conservatory, and will have wondered, perhaps, to whom it belonged. It is the home of Mrs. North, and was built by the late Colonel North, being completed only just prior to his sudden death. Thousands of pounds were spent in the erection of the mansion, the palatial stables, and the perfect electric lighting plant; but with these we have nothing to do here, as our visit was to see the gardens, both out of doors and under glass. Like the residence, almost all is new, kitchen, flower, and fruit gardens, lawns having been formed, and new houses erected. But the whole of these are completely dwarfed by the winter garden, upon which the enormous sum of £60,000 is said to have been expended ere the erection was completed.

Before making specific reference to this, however, we may perhaps spend a pleasant half hour in the gardens outside. The name of the head gardener who acts as guide, will be familiar to every reader of the *Journal of Horticulture*. It is G. Abbey. It is not, however, the Mr. G. Abbey who writes in these pages, but that excellent gardener's son, who as a gardener is well worthy of his talented father. For upwards of eight years Mr. Abbey, jun., has been at Avery Hill, and during that time he has practically made the place. Immense forest trees have been felled, lawns and kitchen gardens have been formed, fruit trees planted, and the winter garden stocked. Not that it has taken eight years to do the work—not by any means, as that would have been far too slow for the late energetic Colonel, who wanted things done at once, done well, and done quickly. The natural outcome of this desire was that almost unlimited labour had to be employed, and the strain of planning and supervising that fell upon the gardener must have been very great indeed. However, he is prone to take things calmly, and so came forth from the ordeal with flying colours.

Of what may be termed formal flower gardening there is really none, for the beds are distributed at unequal intervals and are planted in various styles. At the time this visit was paid the Dutch Tulips were making a really gorgeous display both in beds and in borders in various parts of the grounds. The bulbs had not been planted in distinct colours according to variety, but in mixture, though only good sorts had been utilised. In a sheltered corner Auriculas were flowering with the greatest freedom. Amongst them are some of great promise that have been raised by the gardener.

A glimpse is caught in passing of a superb bed of Primroses in a secluded nook, where they had been planted to afford an abundant supply of flowers for Primrose Day. Tulips and Narcissi are also seen, and a new Pansy that has been raised at Avery Hill, and which is named Colonel North. It is entirely distinct from all varieties in commerce, and is at the same time of very great beauty. The prevailing colour is rich velvety brown, the lower portion of the flower being a glossy black-brown. The whole is edged with gold in a very narrow line. It is a distinct light edged Picotee, and is useful for borders or beds, in which it flowers over a very extended period, as well as for pot culture. It is a telling acquisition, of which more ought to be heard in the future. Then there are large numbers of herbaceous plants here and there, besides a small pond surrounded by a little rock garden, that has been formed for aquatics, of which a fine selection has been planted. Suitable plants have been disposed round the pond, and the whole will, under favourable conditions, develop into one of the most interesting features of the estate when the plants have become thoroughly established and at home.

Wall fruit is by no means a great feature, for the simple reason that there is an exceptional dearth of wall space, though where there is some it is occupied by the healthiest of Peaches and Nectarines that one could reasonably wish to see. Pears and Apples in bush form in the garden are magnificent examples of the best management, though on the former fruit will be none too abundant this season, because the frost has destroyed the essential organs in thousands of beautiful blossoms. The trees are not as a rule large, it is not desired that they should be, but they are models of pruning, while there is no vestige of insect pests. Root as well as branch pruning is constantly resorted to, and the results achieved fully justify the grower in the system he adopts. Small fruits of all kinds receive equally as good attention, and give the same handsome return for the labour bestowed upon them.

The dimensions of the vegetable garden are very limited, and for the maintenance of a proper supply the greatest care and attention have to be bestowed so as to insure the utmost being secured from the ground that is at disposal. To effect this, not only are kinds and varieties selected with the utmost discretion, but the working of the ground is most efficiently carried out, and of course no weeds are tolerated, as all the food in the soil is required for the profitable and legitimate crops. Fortunately plenty of manure can be had from the stables, and this being of good quality materially assists in securing the necessarily heavy crops. The actual area of this department is 2 acres, but a fair portion of the margins to the walks of this is occupied by a considerable number of the fruits mentioned in the preceding paragraph.

The under glass plant department is neither very extensive nor very convenient, but here again the utmost advantage is taken of every foot of available space. To give a list of all the plants grown would be a wearying task to reader and writer alike, for the collections are mainly the same in all well furnished establishments. The difference lies in the condition of the stock. In some places it is good, in others indifferent, and occasionally bad, according to the amount of time and the intelligence that are accorded to them. At Avery Hill the two predominating characteristics are health and cleanliness, simply because the requirements of the plants are studied and steps are promptly taken in case of insect invasions. Foliage plants for indoor decoration are extensively grown, as is proved by the many handsome little *Dracænas*, *Crotons*, and Palms that are to be seen. In one large span-roofed structure there were several *Azaleas* that made a brightly pleasing show.

The way the frames are pressed into service in these gardens shows to what useful purposes they may be put, and how valuable they are to the gardener who has large supplies of plants and other things to maintain. Here, again, it is not proposed to enumerate the many plants therein, but specific reference to the *Chrysanthemums* may be made with every justification. There are many hundreds of plants both grown for exhibition and for cut flowers, and all alike are in splendid condition. It would be hazardous to venture to predict as to what form they will eventually attain, but it is certain that unless something unforeseen and uncontrollable occur they will produce flowers well worth a journey to see, especially as the collection comprises many of the best varieties in cultivation.

We will now pass within doors again, this time to see Vines, Figs, and Peaches. Of the former there are several houses, containing all the standard varieties, which are alike in one respect only, and that is their general excellence. Early as it is for the Vines at Avery Hill, one can readily see how easily the grower is master of the cultural details that are entailed with them. There is nothing but clean straight rods, healthy foliage, beautiful laterals, and the promise of bunches in abundance. The houses smell sweet and fresh, as vineries should do, and the borders have been properly made. One looks in vain for insect or fungus, for Mr. Abbey is, like his father, "down" on anything that may prove detrimental to any of the plant life under his charge. As there is no orthodox trellised Peach house there are no trained trees under glass. There are trees all the same that are almost monsters growing in one of the loftiest houses, and the gardener is so pleased with the manner in which these bear, the excellence of the flavour of the developed fruit, and the handsome appearance they take on when ripe, that he is perfectly in love with them, and absolutely resigned to the absence of trained specimens.

Let us turn into the winter garden, which is a structure of singular magnificence, either when regarded from the interior or the exterior. No matter at which door one may enter, there rise before huge Palms, stately Bananas, whose leaves hang over the whole as a canopy of green. Look at the photographic reproduction that is given in fig. 82, and from it get some slight idea as to the plants that are there growing. The centrepiece that may be seen before you, and round which the paths diverge on each side, is of rockwork, built to represent the base of a giant tree that has been hollowed out. It is planted with *Musa ensata* and *M. Martensi*, rising to a height of about 25 feet, and crowned, as it were, by a central specimen of *Cocos flexuosa*, which, towering up in all the majesty of its 50 feet, droops gracefully over.

The groundwork of this pseudo monarch of the wood is *Selaginella* dotted with *Begonias*, and having hanging over the sides *Tradescantia zebrina* and *Cissus discolor*, with Ferns peeping from the crannies in the bark. On each side of the path are *Musa paradisiaca*, and the bulk of the Palm leaves that are visible in the picture are those of *Phoenix canariensis*. Up every pillar travel either *Passiflora princeps* or *Cissus discolor*, and at each corner of the beds is an immense *Clivia*, with its handsome leaves and orange-coloured flowers. Everything in here is spotlessly clean.

No less beautiful is the rock fernery, and the internal arrangement is even more artistic than is the case in the winter garden. Here Mr. Abbey showed his genius in designing, for he conducted the whole of the work, which entailed the use of upwards of 700 tons of rock and cement, which was put in place, and the plants inserted, in the short space of six months. Quick work, indeed, and admirably executed. The structure, of which the photo (fig. 84, page 413) shows about one-third,



FIG. 82.—BANANAS IN THE WINTER GARDEN.

is 80 feet long, 40 feet wide, and 50 feet high, and the planning of the rockwork has been done so that no walls are touched, one may consequently walk all round and examine almost every individual plant. The centre is a small lake, boasting a miniature island, and in the water there are *Nymphæas Laydekeri rosea*, *odorata*, and others, with *Nelumbium speciosum*. At the head of the lake, looking from the ball-room steps, are four small cascades, which make a charming picture, but do not appear in the illustration. Tree Ferns are represented, while about sixty choice species of other Ferns are luxuriating here and there, other plants being added for diversity and effect. Health, grace, and strength are conspicuous features here.

We have not mentioned all the plants and things worthy of mention on this estate, for there are the Conifers and the orchards; but we must draw to a close. We would, however, acknowledge our indebtedness to Mr. Abbey for providing the photographs, and also for his guidance and kindness on the occasion of the visit to Avery Hill.—H. J. WRIGHT.

IN SEARCH OF SUNSHINE.

THE CITY OF THE FLOWERY PLAIN.

A DULL sky, a sea of slush—London. A golden stream of sunny light, a broad expanse of brilliant blossoms—Haarlem. A few hours, made comfortable almost to luxuriousness by the enterprising Great Eastern, brought about the wonderful transformation. One evening I gazed upon a melancholy vista of dripping roofs, draggly trees, and sloppy streets, the next morning my eyes were gladdened by visions of beauty almost too great for words. I struck sunshine at the first attempt, and not sunshine alone, but its best accompaniments, hosts of gay and fragrant flowers, spreading for miles in every direction, lining the roadsides, filling the fields, showing themselves in every window, decorating the children on their way to school, heaped up in deep baskets and high mounds, dominating, in fact, the whole face of animate and inanimate nature. The cost of seeing it all is about the price of a day at Sandown or Epsom, when every winner has mysteriously turned out to be a loser, just in the sweet old way. Happy gardener! whose "tip" is to pin his faith on the cycle of floral pleasure, which always catches the judge's eye.

Since first I rambled by the dykes and dunes of Holland there have come about certain changes in the route, all making for speed, comfort, and economy. Time was when the traveller had to feast his eyes on banks of unspeakable mud two or three hours after the sea journey proper was over, then work his way across a busy town to the station. He can do that still if it so please him, but the necessity for it has been removed by the provision of a spacious landing quay, custom house, and station at the mouth of the river. By an inspiration of terse and expressive nomenclature this has been called the Hook of Holland. It really provides links for a chain engirdling all Europe. It connects directly with Hamburg, Berlin, Cologne, and Bale. The trains are swift; the steamers are magnificent combinations of seaworthiness and comfort. Convenient through tickets are issued at special rates. As an Englishman I have three wishes—to go somewhere, to get there quickly, and to escape extortions on the way. It is my own fault, and not that of the railway company, if I am not satisfied with the confidence reposed in the Great Eastern.

The untravelled Briton has a certain suspicion of foreigners. Well, the stranger who takes you to his bosom with the greatest fervour is usually the likeliest to have his hand in your pocket. But, speaking broadly, I think a man who can cope successfully with a London cabman will prove equal to any continental emergency. Occasionally there is a preliminary stumble at the Custom House. For instance, it is one of the eccentricities of the otherwise admirable Dutch Government that it regards tobacco as a necessity and admits it untaxed, while it holds sugar to be a luxury, and pops on a stiff duty. A friend was pulled up sharply for possession of a sweet cake. The Customs official blandly smiled and asked for 4s. The staggered owner hesitated and tried bluster; no use. Then he resorted to strategy. He magnanimously presented the cake to the officer and passed on. But the latter, more bland than ever, sailed in again. He took the duty and the cake as well! If when travelling you want to have your future career tenderly blessed give porters and tram conductors abroad 3d. If you want your ancestors and your descendants for several generations to share in the blessings heaped upon you give a ½d. instead of 3d., but first of all allow yourself to be cheated out of a 1d. Such are the teachings of experience.

The way to reach the heart of the bulb district is to take the train to Leyden *via* The Hague (change here and wait twenty minutes or half an hour, same platform). A steam tram runs about every hour from Leyden to Haarlem, and passes through all the bulb villages, such as Sassenheim, Lisse, Hillegom, and Bennebroek. I do not speak Dutch, and the worthies who drive and conduct the trams did not speak English. We were, however, on terms of the warmest mutual regard and respect, and I went up and down, around and about, with the greatest confidence and without the slightest confusion or mistake. The secret is a judicious distribution of largesse. A tram conductor who received 5 cents (one penny) every time he put me down at exactly the right spot never fell into forgetfulness. His eye was upon me all the way. Frequently he smiled encouragingly, and when the right moment came he was there at the door, cheerfully beckoning and bowing. If I had not got out then he would have carried me and expected no more.

My route, for personal reasons, was not the one indicated; but had it been, probably my first stop would have been Hillegom. Within two minutes of the tram terminus there is the nursery of

Messrs. Van Meerbeek & Co., who do a large retail trade in England. The place is well worth a call, and the managing partner, Mr. Adrian van Waveren, is a courteous and willing guide. The business has enormously increased since I visited the nursery, seven years ago. There are larger stores, more land, and new houses. Descriptive catalogues are published in four languages—English, French, German, and Dutch; but the principal part of the trade is with England. It is obviously done on complete and careful lines, for the stocks are very large and clean. I was very nearly too late for Hyacinths and Narcissi, and a little too early for Tulips; but I fared best with the latter. It would be tedious to run into lists of names, but I might mention a few special things. Although the day of the Dutch florists' Tulip is in the past, there is a constant and increasing demand for new varieties of the early section—so beautiful for beds, and indeed also for pots. On a large farm these novelties are seen in quantity. For instance, there is the true Scarlet Pottebakker, a variety which we highly esteem, but do not always receive. It is known in Holland as Grace Darling, whereas the spurious Scarlet Pottebakker is grown under the name of Verboom. The latter may be a good Dutch name, but Grace Darling is a glorious English one, and I can vouch for it that the variety is far superior to the other. So rich is it, so brilliant, so glowing, that the sight of it is almost as cheering as the sight of the devoted English fisher girl must have been to the forlorn mariners in whose salvation she immortalised herself.

Rose Hawk, a beautiful form of the well known White Hawk, is equally as good as that fine variety. Amongst later bloomers Koh-i-Noor, Marquis de Westrade, and Pink Beauty must be mentioned. The first is a very dark red, the second a yellow with red stripe, and the third a very delicate pink, distinct in shape. All are worth growing by Tulip lovers. There are several notable doubles. Queen Emma is a bright red with lighter shadings, La Coquette is a deep yellow with orange shading, Mrs. Cleveland is a fine rose, Prince of Wales is a rich dark red, Vuurbaak a fine glowing scarlet. About the best new yellow is Golden King. The variegated-leaved Tulips are not very extensively grown in Britain, but they would be if they could be bedded as they are in Holland, for they are exceedingly beautiful. Many are forms of well known green-leaved sorts; for instance, there are variegated Duc Van Thol, Cottage Maid, Yellow Pottebakker, Royal Standard, La Candeur (d), Rex Rubrorum (d), and many other well known Tulips.

Messrs. Van Meerbeek have added greatly to their glass. They grow enormous quantities of Gesneraceous plants. Achimenes and Tydas are a special feature. One of the finest plants in flower at the time of my visit was *Ismene calathina*. Most people would consider it hardly so graceful as *Pancratium fragrans*, but it bears a general likeness to that favourite plant, and when its early flowering character and adaptability to forcing are borne in mind its usefulness becomes apparent.

From Hillegom, with its handsome villas and generally prosperous air, to the next place, the village of Bennebroek, there is nothing but bulbs. Only a trade buyer would wish to spend day after day in closely scrutinising the individual stocks of every grower; but the most casual amateur would find food for admiration in the magnificent spectacle of hundreds of acres of Hyacinths and Tulips. I do not wish to rhapsodise, for if I did I might be led on to the same lengths as the writer who peopled the waterways with Naiads. Fancy Naiads in a Dutch canal! Barges laden with cow manure if you like, for there are long strings of them, but Naiads! I pass on. However, the general view is so magnificent that plain words seem inexpressive after all. The flat fields are alive with colour. Some people call Tulips gaudy, but when scores of varieties blend their hues with each other there is no garishness. There is really hardly any limit to the diversity of shades, and each variety has its character. The most effective soon proclaim themselves. Vermilion Brilliant, the true Scarlet Pottebakker (Grace Darling), and Rembrandt are three of the finest reds. Chrysolora, Ophir d'Or, and Yellow Pottebakker have a tussle amongst the yellows, and Joost Van Vondel (white) and White Pottebakker are very prominent amongst the whites. But some of the most beautiful sorts do not fall into any of the above classes. Proserpine stands in one of its own, so do Le Matelas (a beautiful rose), Joost Van Vondel (crimson and white), the old familiar Keizer's Kroon; Cottage Maid, most beautiful of rosy pink sorts; Queen of the Netherlands, soft flesh colour; Thomas Moore, almost orange coloured; Van der Neer, purplish lilac; Wouwerman, claret.

It is the same with Hyacinths. The growers evolve many new sorts yearly, but they have not yet improved on King of the

Blues. It is unique in habit and beautiful in colour. One of the disappointments of a bulb tour is the reflection that only if one were wealthy could he hope to emulate these superb beds. Even then it would want culture of the best. Thousands of spikes are seen in the open fields such as we rarely produce even in pots. The same with regard to other varieties—Queen of the Blues for instance, which is a lovely pale blue, Grand Maître, Czar Peter, and Lord Derby. Then amongst the reds there are Von Schiller, the comparatively cheap Gertrude, Robert Steiger, Roi des Belges, Vuurbaak, Norma, Cardinal Wiseman (a grand sort), and Gigantea. First always amongst the Whites is La Grandesse, but Paix de l'Europe, Belle Blanchisseuse, Blanchard, and Madame Van der Hoop also show up extremely well. Every one of these sorts is represented by some magnificent beds, and it is at once a source of envy and delight to observe the splendid trusses which spring from a bed of sand dressed with cow manure in the open air.

There is, as might be expected, a strong family likeness between the bulb farms. The owners, of course, see differences enough, just as Mormon mothers are able to single out the babies in a family of thirty or forty. But to a foreign visitor it is impossible to distinguish. The confusion is helped by the singular fashion in which the farms are mixed up. One field belongs to A, the next to B, the third to A again, and so on. I tried to grasp the limits of the possessions of the Van Waveren family, some of the members of which gave me very kind help and guidance, but I am not quite sure whether I succeeded. This is somewhat the order of events—I admired a bed of Keizer's Kroon Tulips. "Ah! Messrs. F and H, what a beautiful bed, and what a charming lot of Cottage Maid you have on the other side of the ditch." Messrs. F and H exhibit mixed feelings. "The Keizer's Kroon," say they, "are ours, but the Cottage Maid belong to Messrs. J and A." I look again, and proceed with diminished confidence. "Well, you have a good bed of La Grandesse there, and the Blanchards next to them are splendid." Messrs. F and H smile dubiously once more. "Ye-es! but the Blanchards belong to Messrs. H. H. Van Waveren." I made a further attempt, but after finding that there were still four more firms, varying slightly only in the initials, I gave it up. I am assured, however, that despite the extent to which the plots are mixed the growers never make the mistake of manuring each other's land, or of praising each other's stocks.—W. PEA.

APPLE EASTER ORANGE.

It is so seldom that a dessert Apple is honoured with an award of merit by the Royal Horticultural Society so late as the 27th of April that we give a figure of the above variety, which was sent by Mr. Hillier on the date mentioned, and met with the Committee's approval. The fruit is briefly described in our issue of April 29th, page 361, and it need only be said now that the Apples exhibited bore a general resemblance to large fruits of Cox's Orange Pippin, but were darker and more boldly streaked, also quite different in quality. The variety is totally distinct from Cox's famous Apple, and we do not know whether Mr. Hillier was the raiser of the much later Easter Orange or not.

TOMATOES IN POTS.

THE present is a suitable time to carry out the final potting of Tomatoes intended to furnish the main crop. The plants are easily managed in pots and produce good crops, provided certain essentials are secured for them. These essentials are in the case of pots 11 or 12-inch size, so that there is abundant room for the roots which should eventually occupy them entirely. The drainage ought to be effective, but not too abundant. Water is required so frequently when the plants are in active growth that it is imperative for the surplus water to pass freely away; yet when the drainage is too free the escape is more rapid than desirable.

The soil is the next item of importance. The main thing to guard against is not to employ a light or freely manured compost. A soil rich in organic matter will induce growth which does not tend to be fruitful. This must be guarded against, in order that an early fruiting condition is secured; the plants can then appropriate rich food to advantage, given to them as they demand it. The best soil is undoubtedly substantial turfy loam. Should the material be rather poor in character add a sixth of decomposed manure. Leaf soil must not be used freely, if at all. To insure porosity broken charcoal and a small quantity of pounded brick may be intermixed.

The crocks forming the drainage should be carefully covered with a thin layer of turf or the rougher parts of compost. On this place the plants, one in the centre of each pot. Healthy,

sturdy plants that have just filled their pots with roots are the best. Those occupying 4½ or 5-inch pots are better than larger or smaller plants. If turned out of larger pots there is necessarily a greater bulk of roots and soil, which when properly covered in the fruiting pots require a large bulk of compost. This occupies considerable space, because it is highly desirable that a portion of stem should be buried from which new roots will be emitted. The compost must be placed in firmly, using a blunt stick so as to compress it sufficiently firm. A short-jointed growth is promoted thereby, as the roots are induced to become fibrous.

After potting place the plants close to the glass on a light sunny shelf. Withhold water for a day or two according to the weather and the temperature, then give sufficient to moisten the whole mass. Successive waterings must be carefully given, so that the compost is not unduly saturated before the roots have had time to enter it. If water is given only when the soil over and around the old ball dries, the requirements of the plants will be met, and their steady, healthy progress insured. The attention given to Tomatoes at this stage should be regular, as it ought to be at other periods; but from the time of the final potting or planting until fruit sets is important. Too free applications of water will cause sappy growth and prevent the formation of flower trusses, and

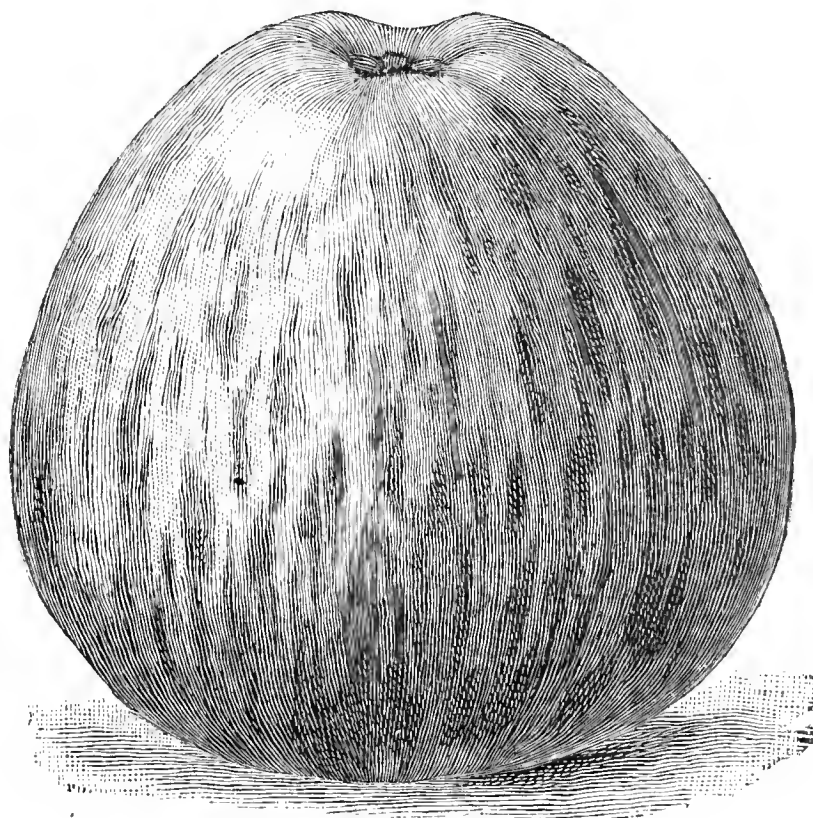


FIG. 83 —APPLE EASTER ORANGE.

therefore fruit. Abundance of light, and a proper temperature, with a regular circulation of air, must not be omitted.

When the first bunch of fruit has set the critical period is passed. The pots may then be placed in a permanent position, the plants staked or arranged for training on wires, but light and plenty of sunshine must have free access. Tomatoes cannot and will not endure shade.

As soon as the soil in the pots becomes freely occupied with roots, and a number begin to appear on the surface, a top-dressing of compost can be given. This may be of a richer character than that used in potting. Continue these applications each time fresh roots appear. They stimulate root action, and the setting of the fruit is practically certain when this is encouraged to be actively continuous.

A dry and airy atmosphere, with a little warmth at night, is undoubtedly of great assistance to Tomatoes during the early summer. When fire heat has been employed and is suddenly discontinued fungoid diseases may be induced, but in a comparatively dry warm temperature they cannot obtain a footing. In a suitable structure, and with careful, regular, intelligent management, it is possible, in my opinion, to avert attacks from fungoid diseases.

The method of training the plants ought to be referred to. For pot culture the single stem system is best. Let the plants extend without topping the leader at any point, but rub out as soon as formed the small side shoots which appear in the axils of the principal leaves. This is all the pruning or training required, except tying the stems to stakes or wires as they advance. Shortening the main leaves to the extent that some cultivators do is wrong practice, and is only justifiable when the fruit is approaching the ripening period.—E. D. S.



WEATHER IN LONDON.—The winds during the past few days have been very keen and gusty, sometimes accompanied by cold rains, but more often dry. On Thursday last it was cold and very showery; but on Friday it was much brighter, though there were two or three slight showers in the afternoon and evening. On both Saturday and Sunday gleams of warm sunshine shone out between periods of dullness. The wind on each day was a little boisterous and cold. Towards the evening of Monday heavy showers fell, but Tuesday was clear and lovely until night, when rain again fell. Wednesday was clear and cold.

WEATHER IN THE NORTH.—The ungenial weather of the preceding fortnight has continued throughout the past week. Almost every night the thermometer has been at or under the freezing point, and piercing northerly winds have prevailed. The evening of Friday, when gentle rain fell for some hours, and Saturday morning were somewhat milder, but the afternoon of the latter day, Sunday, and Monday, were bitterly cold, and there was no improvement on Tuesday morning.—B. D., *S. Perthshire*.

DEATH OF MR. R. OWEN.—It is with deep regret that we have to announce the sudden death of Mr. R. Owen, Maidenhead, which took place last Saturday afternoon. Few men were better known in the Chrysanthemum world than Mr. Owen, who was formerly gardener to G. Schwabe, Esq., and went into business on his own account about thirteen years ago. Mr. Owen's death was brought about by heart disease at the age of fifty-seven, and we tender our sympathy to his relatives and friends.

PLOUGHING IN A GREENHOUSE.—At Redlees, Isleworth, a curious and novel sight has been witnessed, a local paper says, this spring. The owner has erected ten huge glass houses, 600 feet long by 40 feet wide, and, after calculating the cost of digging, decided to dispense with manual labour in favour of the plough. Two ploughs have been at work under the glass, ploughing from end to end, the ground being afterwards harrowed in the ordinary way. Although the men and horses are under cover, they have to wait for favourable weather, such work being impossible in bright sunshine owing to the excessive heat. The houses are intended for the culture of Tomatoes.

NATIONAL CO-OPERATIVE SHOW.—The new schedule of this annual Show has just been issued. The prizes are increased to £350 in cash, besides gold, silver, and bronze medals, framed certificates, and other awards. The Agricultural and Horticultural Association contributes £200 to the prize list, and the Crystal Palace Company £150. The Show is fixed to be held on Friday the 20th and Saturday the 21st of August at the Crystal Palace, concurrently with the Great National Co-operative Festival. Mr. George Waugh again acts as Hon. Director of the Show, and Mr. Edward Owen Greening as Hon. Secretary. The schedule may be obtained on application to the Hon. Sec., at 3, Agar Street, Charing Cross, W.C.

WOLVERHAMPTON GARDENERS' HORTICULTURAL CLUB.—At the monthly spring meeting of this Society there was a goodly attendance of members to hear an essay on "British Ferns and their Allies," by Mr. W. Gardiner, Harborne, Birmingham. The essayist's object in reading a paper on this subject was based on a twofold purpose—viz., from a desire to incite an increased love for, and an extension in the cultivation of this highly interesting and most useful class of our native flora, and with this object in view he sought to inculcate it by references more in relation to the various and beautiful attributes possessed by Ferns; also of their unique and wonderful reproductive organisation, including likewise, as the various genera were passed in review, references to the nomenclature and etymology of the same as far as practicable, than to cultural details. The essay was illustrated with a small collection of dried fronds. Altogether the subject proved of an interesting character, and was followed by an instructive discussion, in which Messrs. Simpson (the Chairman), Lowe, Bishop, Bradley, and Banner took part, elucidating also the fact that Mr. Bradley has charge of a very good collection of hardy Ferns, and in which such as the Parsley Fern (*Allosorus crispus*), and the comparatively rare Scaly Spleenwort (*Ceterach officinarum*), which latter is somewhat difficult to cultivate, flourish satisfactorily.

GARDENING APPOINTMENTS.—Mr. John H. Cumming, for the past ten years gardener and steward to Viscount Gough, St. Helens, Booterstown, Dublin, has been appointed gardener and steward to the Lady Stewart, Glandtully Castle, Ballinluig, Perthshire, taking up the duties there on May 28th. Mr. David Sime, gardener to Colonel Clements, Killadoon, Celbridge, Co. Kildare, has been appointed gardener and steward to Viscount Gough, St. Helens, Booterstown, Dublin. Mr. David Kirk, foreman in the gardens at Willow Park, Booterstown, has been appointed gardener to Colonel Clements, Killadoon, Celbridge, Co. Kildare.

EARLY TOMATOES IN THE ISLE OF WIGHT.—In reply to G. R. Peerless (page 363) *re* particulars of above, I may say that the plants mentioned were raised from seeds sown in December, the exact state of sowing not being recorded. The plants were grown freely in a minimum temperature of 55° to 60°, and in their early stages received the syringe, as well as a free circulation of air. They were potted into 10-inch pots, in which they are fruiting, early in February, the soil containing no manure, and now the plants are 8 feet high, single stem, with healthy foliage hanging over the pot tops. Some of the leaves measure 20 inches long and 16 inches wide. There is an average truss of fruit (with from six to eight fruits) for every foot of growth. Mr. Barkham attributes his success to a judicious amount of heat, air, and moisture in suitable proportions. The faddy idea that Tomatoes should never be syringed he considers moonshine, and one's common sense should be a great guide in the cultivation of all plants. The variety above mentioned is a cross between Early Ruby and Frogmore Selected.—S. H.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Lord Rothschild, who is to preside at the annual dinner of this admirable Association, which will be held at the Hotel Metropole on Wednesday, the 26th May, makes the following appeal. "I have consented to preside at the fifth-eighth festival dinner in aid of the funds of the Gardeners' Royal Benevolent Institution, and I venture to ask for the kind assistance and support of all lovers of flowers and gardening. The charity—the only one of its kind in the United Kingdom—whose cause I have undertaken to plead, has been established fifty-nine years. It has distributed £71,000 to worn-out gardeners, horticulturists, and their widows in distressed circumstances, and has now upon its funds 161 persons—men and women—who are receiving permanent relief at an annual cost of nearly £3000. To meet this expenditure the only assured income is £900, leaving the remainder to be made up by subscriptions and donations. Towards this object I earnestly solicit generous aid. I may mention that the Queen has been the patroness of the charity for forty-five years, and that in order to commemorate the sixtieth year of Her Majesty's glorious reign, a special fund, to be called the 'Victorian Era Fund,' is being raised for the benefit of applicants who are awaiting aid, and who cannot at once be assisted for lack of means."

MAKING MORE GARDENERS.—The following regulations for junior scholarships in practical gardening are issued by the Technical Education Board of the London County Council:—"The Board has decided to institute junior scholarships in practical gardening tenable at the gardens of the Royal Botanic Society in Regent's Park. These scholarships are intended to offer to boys who wish to become gardeners an opportunity of going through a thorough course of training. The following are the regulations relating to the award of the scholarships:—1, The Technical Education Board will proceed in July to award three junior scholarships in practical gardening tenable at the gardens of the Royal Botanic Society in Regent's Park. 2, The scholarships will be awarded, not upon the results of a set examination, but upon a consideration of the record and qualifications of the candidates. Each candidate must furnish the Board with a statement as to his past career and his future intentions, and his application must be supported by specific recommendations from his head master and other teachers. 3, The scholarships are open to boys who are not less than fourteen, and not more than sixteen years of age on May 1st, 1897. 4, Candidates must be resident within the Administrative County of London at the time of the award of the scholarships, and must continue to reside within the county during the tenure of their scholarships. 5, The scholarships will provide free instruction in horticulture at the gardens of the Royal Botanic Society in Regent's Park. They will also provide a maintenance grant of £20 per annum to scholars under fifteen, and £25 per annum to scholars over fifteen years of age. The scholarships will be awarded in the first instance for one year, but will be renewable for a second, or even for a third year, if the progress of the scholar is satisfactory to the Board. 6, No candidate will be eligible for these scholarships whose parents are in receipt of more than £250 per annum."

— APRIL WEATHER AT HODSOCK PRIORY, WORKSOP.—Mean temperature, 44.5°. Maximum in the screen, 67.6° on the 29th; minimum in the screen, 25.3° on the 5th. Minimum on the grass, 14.6° on the 5th. Number of frosts, in the shade nine; on the grass nineteen. Sunshine 136 hours, or 33 per cent. of the possible duration. Rainfall, 1.31 inch. Rain fell on seventeen days. Rather showery, with some sharp frosts at the commencement. Mean temperature the same as in March, and the nights colder. Vegetation late.—J. MALLENDER.

— THE WEATHER LAST MONTH.—April was changeable, but severe frosts only occurred on two mornings. The prevailing direction of the wind was N. on fifteen days. Total rainfall, 1.52 inch, which fell on sixteen days, this being 0.28 inch below the average for the month. The greatest daily fall was 0.32 inch on the 6th. Barometer (corrected and reduced), highest reading 30.285 inches at 9 P.M. on the 10th, lowest 29.122 inches at 9 A.M. on the 1st. Thermometers, highest in the shade, 66° on the 29th; lowest, 25° on the 11th. Mean daily maxima, 51.46°. Mean daily minima, 37.06°. Mean temperature of the month, 44.26°. Lowest on the grass, 16° on the 11th; highest in the sun, 127° on the 15th. Mean of the earth at 3 feet, 44.10°. Total sunshine, 146 hours 40 minutes. We had four sunless days.—W. H. DIVERS, *Belvoir, Castle Gardens, Grantham.*

— ROYAL METEOROLOGICAL SOCIETY.—The Council has occasionally been urged to hold the meetings of the Society in the afternoon instead of in the evening, and is desirous of consulting the convenience of the Fellows in this matter. It has therefore thought that as the next two meetings cannot be held at the Institution of Civil Engineers afternoon meetings might be tried on these occasions. The meeting on May 19th will be held in the rooms of the Royal Astronomical Society, in the quadrangle of Burlington House, Piccadilly, W., at 4.30 P.M., when the following papers will be read:—"The Rainfall of Dominica, West Indies," by C. V. Bellamy, F.R.Met.Soc., Associate M.Inst.C.E.; "On the Mean Monthly Temperatures of the British Isles, 1871-95," by R. H. Scott, F.R.S., and F. Gaster, F.R.Met.Soc.

— RICHMOND HORTICULTURAL SOCIETY.—Ninety-eight classes are enumerated in the schedule of this Society, whose show will be held in the Old Deer Park on Wednesday, June 23rd. As usual there are open and restricted classes, together with Society's and special prizes. For a group of plants £14 is offered in four prizes, while to competitors who show in this class and do not gain a prize a premium of £1 will be given. Six stove and greenhouse plants take £5, £4, and £3 as the respective prizes. For Roses, twenty-four trebles, £6 is scheduled; other prizes for plants, cut flowers, fruits, and vegetables being equally good. Schedules may be obtained from the Hon. Secretary, Mr. A. A. Chancellor, Old Palace Place, Richmond.

— ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION.—It is very pleasing to record a steadily increasing interest in the work of the above Association; new members are being continually enrolled, and there are very few of the principal gardeners in the island now who have not joined the ranks, and it cannot fail to do good work in the advancement of horticulture generally in this favoured spot. It is fortunate in having a very popular President in Dr. J. Groves, B.A., F.G.S., who throws a deal of energy into the work, and a capital Hon. Secretary in Mr. S. Heaton, F.R.H.S., who seems to have the knack of drawing gardeners together, not always an easy task. On Saturday last, May 8th, the President, the Hon. Secretary, and about fifty other members responded to the invitation of the Rev. H. Ewbank, F.R.H.S., to visit his garden at St. John's, Ryde. The weather was delightfully fine, and the members found therein much to interest them, the garden being noted for the very choice collection of rare alpine and other plants of quaint or botanical curiosities. Many of the Irises were over, but *I. iberica* was at its best, and other varieties coming on. A fine clump of *Paeonia tenuifolia*, with crimson flowers and finely cut foliage, was conspicuous among other choice and interesting plants. Tea was provided on the lawn and heartily enjoyed, Mrs. Ewbank and others being assiduous in assisting and attending to the wants of the members. After the tea the President proposed a hearty vote of thanks to the Rev. and Mrs. Ewbank for their kind invite and hospitality, which was seconded by Mr. C. Orchard, and heartily responded to. The members afterwards availed themselves of the opportunity to look over the adjacent grounds of Appley Towers by the kind permission of George Hutt, Esq., when they had the opportunity of seeing some fine specimens of flowering shrubs in full beauty, one plant of *Choisya ternata*, measuring at least 12 feet through, being a perfect picture. In the evening the President read a paper at the Town Hall, Ryde, on "The

Influence of Microbic Life in the Nutrition of Plants," which was well attended and listened to with much interest. A good collection of Orchids was exhibited, and Mr. J. Barkham, Longford, was awarded a first-class certificate for a dozen fine fruits of Cucumber Longford Hall. The Orchids exhibited were awarded a cultural certificate.—C. ORCHARD.

— ROBINSON v. WARD, LOCK, & CO. (LTD.).—The plaintiff in the above action, on the 2nd day of April, obtained from His Lordship, Mr. Justice Kekewich, in the Chief Division of the High Court of Justice, an order perpetually restraining the defendants from printing, publishing, selling, or disposing of, and from advertising, offering, or exposing for sale any newspaper, periodical, or publication by the name of "Gardening Illustrated," or by any other name so similar to "Gardening Illustrated" as to induce the public to believe that such newspaper, periodical, or publication is the paper published by the plaintiff.

— THE CRICKET SEASON.—In a few days the cricket season will be in full swing, and matches will be played from one end of the country to the other. The employes of Messrs. Sutton & Sons, Reading, are, like their employers, up to date, for they have sent us the match card of Suttons' Cricket Club, with the fixtures on it for the current season. There are three teams—namely, A, B, and junior—and amongst them they will play, circumstances permitting, forty matches at home and away. The opening game will be on May 19th, and the closing one on August 28th. We wish the willow wielders and the leather trundlers every success.

— FINE MUSHROOMS.—I herewith send you a small box of Mushrooms for your breakfast, if you will kindly accept them. They are grown from instructions in "Mushrooms for the Million." If you think they are worth it, you can acknowledge them in your next issue of the Journal. I have splendid crops, plenty of specimens weighing over $\frac{1}{2}$ lb., some over 1 lb. each, quite as fresh as those sent.—W. F. SMITH, *The Church Close Nursery, Clent, Stourbridge.* [The specimens are accepted with thanks. They are certainly worthy of public acknowledgment, as finer and fresher examples we have not seen, and scarcely expect to see this year. Mr. Smith is to be congratulated on his successful cultivation of the delicious esculent.]

— "AMATEUR WORLD OF HORTICULTURE."—Such is the title of a book of twenty-six pages that is published by the National Amateur Gardeners' Association for gratuitous distribution amongst its members, also those of the National Cactus and National Viola Societies. Besides a few editorial notes papers are given on Cactuses by Mr. Lewis Castle, and on Violas by Mr. W. Baxter, both of which contain sound information of a useful character. Much other matter is given, including reports of the shows held by the Association during January, February, and March, particulars relative to affiliated societies, and the excursion arrangements for the season. Mr. Leonard Brown, Brentwood, Essex, is the Secretary of the Association, and to him all communications must be addressed.

— LIVERPOOL AMATEUR GARDENERS' ASSOCIATION.—That the Liverpool amateurs are determined to keep up their reputation was evidenced by the largely increased number present at the Common Hall, Hackins Hey, Liverpool, on Thursday last. Prior to a paper on "Azaleas," by Mr. R. Pinnington of Roby, letters of regret were read by Mr. Cooper from the President, Mr. Isaac C. Glover, and Mr. J. M. Smyth, Secretary, both of whom were on the sick list. Mr. Pinnington said Azaleas were much liked and very useful, but many amateurs did not succeed with them. Good fibrous peat and sand, also careful drainage, were needed when repotting, the best time being just as the plants commence to grow. Large shifts were not beneficial, the soil being apt to get soured. Careful attention to watering, frequent syringings, and a moist growing temperature from 45° to 55° would get them into condition for setting their buds, the plants being benefited by a shady position outdoors during the later summer months. Syringing occasionally with soft soap and warm water would tend to keep thrips at bay. House at the end of September, seeing that the pots are free from worms, and do not overwater. A list of twenty-four amongst the best varieties was written and presented to the members, *Deutsche Perle* being recommended as an early white, and *Souvenir du François Vervaeue*, one of the most handsome whites in cultivation, for late work. The members had some interesting exhibits, Mr. Baddeley winning with Azaleas, Mr. Langley with *Dentzia gracilis* and one Fern, Mr. Redfern greenhouse flowers, Mr. Ardran handsome Roses. Mr. Drake had a pretty *Cattleya citrina*, and was awarded certificate for Cactus, the special prizes going to Messrs. Langley and Hoskyn. Several new members were proposed. Votes of thanks closed the meeting.

HOEING.

SURFACE cultivation of the soil includes hoeing, as amongst the most important operations. So needful, or rather essential, is this that it is worth the closest attention of all engaged in gardening, whether they are commencing or more advanced in their career. It well repays careful study, as few common tasks have so many interesting bearings upon soil condition and plant economy. Unthinking workmen too frequently regard hoeing as merely a ground-cleaning operation, placing it upon the same basis as sweeping a walk or cleaning a greenhouse; and certainly if it is done thoroughly even from this standpoint the whole purpose is fulfilled. A young gardener, however, who wishes to follow his calling in a manner creditable to himself and his employers, should not be content until he understands the objects and effects of every task he is called upon to perform.

In the destruction of weeds by hoeing the objects are not only to prevent soil exhaustion and the consequent injurious competition with legitimate crops, a matter of vast importance, but also to decrease the evaporation of moisture from the soil, which is greatly increased when it is occupied with vegetation either as cultivated plants or weeds. Any plant that exposes a large leaf area to the action of the sun and air absorbs an enormous quantity of water from the soil every day when in full growth, and under a hot sun a large proportion of this is immediately evaporated. Some years ago Dr. Stephen Hales conducted a series of interesting experiments in the evaporation of moisture from growing plants, and his results have furnished many subsequent observers and writers with valuable hints. The leaf surface of the plants employed was measured, and by a careful system of weighing the plants at different times the amount of moisture evaporated was determined. The following examples, all well known plants, will serve to indicate the results of these experiments, and the subject now under discussion:—

PLANT.	LEAF SURFACE. SQUARE INCHES.	WATER EVAPORATED IN TWELVE HOURS.
Sunflower	5616	20 ozs.
Cabbage	2736	19 ozs.
Vine	1820	5½ ozs.
Apple	1589	9 ozs.

Many weeds can almost rival the Cabbage in their leaf surface and evaporating powers. I have observed numbers of vigorous examples of common weeds with abundant foliage, that I have estimated to present a leaf-surface of 500 to 1000 square inches. When it is considered how closely weeds occupy the ground compared with cultivated plants, it will be seen that their moisture-evaporating powers are greatly increased.

Probably as regards all the smaller growing and surface-rooting, or annual weeds, the chief evil arises from their depriving other plants of the moisture they need; but deep-rooting weeds like docks and thistles also exhaust the soil of many important substances besides water. Those with creeping roots, like couch grass (twitch), and bell-bine also impoverish the ground; all such should be burnt and returned as a surface-dressing, for the double purpose of insuring their complete destruction, and the restoration of the mineral constituents of their ash to the soil. In the case of all weeds not bearing seed or increasing by their roots there is no doubt that the best means of turning them to advantage is by digging them into the ground, thus converting them into manure. But this is seldom practicable when the ground is occupied by crops, and in consequence we have to depend upon our friend the hoe for aid in their extermination.

But beyond the destruction of weeds hoeing affords material help to the gardener in cultivation, for surface stirring benefits crops greatly, as the majority know, though all may not understand the reason. When soil becomes "caked" and dried on the surface the minute passages between the atoms, termed capillary tubes, are innumerable, and through these moisture contained in the soil is absorbed from a considerable depth by the power of the sun, and it escapes just as it does from the pores in the leaves of plants. Many experimental scientists have directed their attention to this subject, and have shown what a large proportion of moisture is lost by evaporation compared with that which passes through the soil. The average of many observations on the Continent and elsewhere shows the following per-centage—i.e., 31·3 percolation to 63·2 evaporation. At Rothamsted the results of several years' observations give a nearly identical proportion, namely 36·8 percolation to 63·2 evaporation. In a series of experiments at Rothamsted extending over ten years the following records were obtained:—

MONTHS.	RAINFALL. INCHES.	DRAINAGE. INCHES.	EVAPORATION. INCHES.
April to September	16·364	4·393	11·971
October to March	14·673	9·096	5·577
	31·037	13·489	17·548

Any means that can be adopted to reduce this enormous evaporation must obviously be of great advantage, and experiments have proved that the practice of hoeing, even only as a surface stirring expedient, is correct and beneficial in every way. At the Storrs Experimental Station some comparisons were made a few years ago with regard to the effects of stirring on heavy and light soils and to different depths, the results being very marked in all cases. The method adopted was to fill cans 30 inches deep and 10 inches in diameter, evenly, and of the same degree of solidity as ordinary soil, and these were then placed in the ground so that the tops were level with the surface, thus being exposed to the same evaporating power as the surrounding soil. Four cans were devoted to each experiment, the heavy soil consisting of 20 inches depth of yellow clay at the bottom, the upper 10 inches being a heavy loam. The light soil had 10 inches of sand at the bottom, the upper 20 inches being light loam. The experiments were conducted during a period of a fortnight—namely, from August 15th to August 31st, when the weather presented an average-alternation of sun and cloud. The loss of moisture in the time named was as follows:—

	HEAVY SOIL. lbs. ozs.	LIGHT SOIL. lbs. ozs.
Not stirred	4 13	3 5
Not stirred	4 9	4 2
Stirred 2 inches	3 10	1 12
Stirred 4 inches	3 8	2 3

It will be seen that as regards the heavy soil the average gain was 1 lb. 2 ozs. of moisture by stirring, and with the light soil the gain was about 1 lb. 15 ozs. One advantage of facts like these is that they serve to impress upon young minds the importance which attaches to quite ordinary work, for in hoeing the continuity of the capillary tubes is broken and the loosened surface soil becomes a kind of non-conducting layer, which may be said to serve in a measure the same purpose as mulching. I remember once visiting a celebrated Strawberry garden, which, to my surprise, was little better than a sand bank, and it perplexed me how such a moisture-loving plant could be not only kept in healthy condition, but made to yield abundant crops of fine early fruits in such a soil. It is possible that it contained naturally some substances beneficial to the Strawberry, but beyond this the owner attributed a large measure of his success to the frequent use of the hoe between the rows, especially in dry weather.

In my own experience I have seen results from hoeing as surface stirring only that were equally surprising, and in some cases it has produced even more effect than an application of manure. Heavy soil that is liable to crack in prolonged dry weather is much benefited by the use of the hoe, for with cracks in the soil an inch or more in width and a couple of feet deep it can be imagined what moisture must escape by evaporation. Timely hoeing not only prevents a large portion of this waste, but it prepares the soil to receive the rain when it comes, and enables plants to secure the maximum of advantage such supplies should yield.—PRACTITIONER.

LATE TULIPS AT LONG DITTON.

My second visit to Messrs. Barr & Sons' bulb grounds near Surbiton was under very favourable weather conditions, for not only was the air warm, but the sun shone out gloriously, and created in the masses of Tulips seen on every hand a harmonious response.

What marvellously rich as well as beautiful colours Tulips give, but especially the lustrous selfs, for these, without doubt, create the finest effects outdoors, whether in clumps or masses; the most brilliant ones, which however florid when near, viewed from a distance giving colouration as beautiful to look upon as is the fiery setting sun on a wintry afternoon.

Of all bulbs the Tulip is undoubtedly the richest in colour, as well as varied in shade or hue. Striking as are the early Dutch varieties, the late ones, and especially the singularly beautiful Darwin forms, excel in variety as well as in delicacy of tint or colour. If, as a rule, the flowers are less in size, they are borne on rather taller stems, and in that respect are so beautiful. When cut early for vase decoration they keep in a cool room for a fortnight. Their greater height also gives them a more commanding aspect, and if blooming best in May, they do so under more acceptable conditions, for the weather in the later month enables flowers to be more completely enjoyed.

Very many persons have to make acquaintance with these Tulips only at exhibitions, and then usually in dull light, and in mere handfuls; but the few who can get to Long Ditton see them, especially on a bright sunny day, in their glory. If Solomon in all his magnificence were yet not arrayed like to the Lily of the fields, how would he have compared with a late self Tulip of any hue or marking? Really they seem to be flowers of the gods, the

goblets from out of which they in metaphor quaffed the nectar of Olympus.

How strange is it that with such beautiful models as these flowers present, yet our artificers in rich metals seem never to have fashioned goblet, cup, or tankard to resemble a glorious Tulip. Judged by purely garden ideas, the flaked bizarre and bybloemen flowers so much loved by the florist, and of which there is at Long Ditton so fine a collection, are not in a mass so effective. They need individual examination, and those who have the true florist's mind see in them markings of wondrous beauty and excellence. Of these I took no note; they are best dealt with by those who know them. In the beautiful section known as Darwin's there is such a wealth of colouration, self-shaded and parti-coloured, that it is hardly needful to look farther; but there is none the less outside of these infinite variety.

One of the first I noticed, and it was found in great quantity,

purposes, being once planted, the best Tulips for late blooming that exist. Those I specially noted, though all were good, were:—

CARMINEA.—Rich carmine rose, approaching magenta, shaded carmine.

ERGUSTE.—Bluish heliotrope, the nearest shade of blue seen in the collection. A very lovely Tulip.

CORDELIA.—Purple shaded blue, with a rose tint; is equally charming.

DOROTHY.—A bluish mauve tint, shaded white, or in some flowers giving a shade of creamy rose.

EARLY DAWN, rosy lake, shaded blue. These descriptions suffice to show what rare tints are to be found in these Tulips.

GLOW, one of the rich fiery brilliant vermilions that can be seen so far off.

FIREBRAND, a real fiery furnace of colours, is even more intense than the preceding.

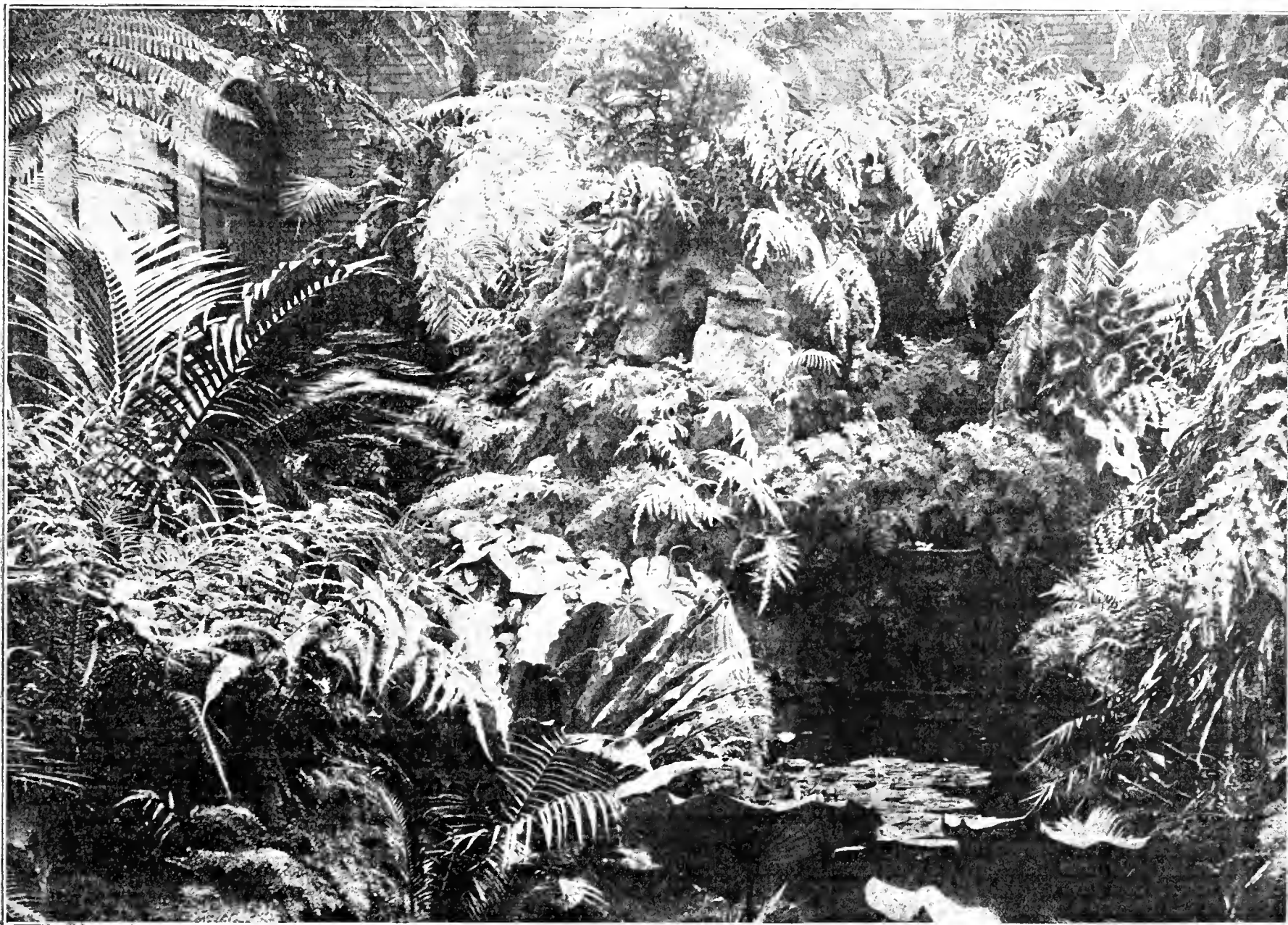


FIG. 84.—THE FERNERY AT AVERY HILL. (See page 407).

was Picotee or Maiden's Blush. The flowers in the early stage are creamy white, becoming white as they enlarge, then showing a narrow edging of rose, which, as the flowers age, becomes much broader, and presenting in each phase singular and refined beauty. Near by was a large bed of Golden Beauty, rich deep orange yellow, of rounded, handsome form, and strikingly effective in bulk. A grandly coloured Tulip, too, is macrospila, rich crimson scarlet with black base, very fine for massing. Even more fiery in colour is Didieri, a rich vermilion crimson, that glows in the sunlight with marvellous effect. Didieri lutescens is a pretty primrose yellow, and Didieri alba a soft creamy white slightly edged with rose. The Gesnerianas are, of course, prominent, especially *G. spatulata*, of intense crimson scarlet hue, the flowers large and massive; and *G. rosea*, deep rosy carmine, very lovely.

In a huge cluster of beds are the Darwinian section, but there is about them nothing of the monkey or the grotesque. Generally the flowers of this singularly beautiful class, of which there are over two dozen varieties, are well borne above the foliage, and excellent in form, though not large. They seem to be for garden

LOVELINESS, a variety that is aptly named; colour soft satiny rose, of exquisite beauty and rather taller.

MAY QUEEN, of a soft rosy lake, a charming form.

ZEPHYR, another of the heliotrope hues, having a bluish shade; flowers bold and erect.

PHYLLIS has flowers of a delicate white, shaded rosy lilac.

SULTAN is the darkest of all. The outer petals are purplish maroon, the inner ones almost black. It is a very distinctive and marked variety.

SCARLET BEAUTY.—This makes a dozen, and is scarlet shaded orange, a very beautifully formed flower, and of striking appearance.

Of others in quantity very noticeable were Blushing Bride, white striped, and feathered scarlet; and Royal White, very pure and fine. Many of these Tulips are now comparatively cheap, and among those that are more expensive it must not be forgotten that they, if well cultivated, increase from year to year, and three bulbs soon expand to a dozen.

To leave them in the ground [all the] year [round] untouched

is hardly fair treatment, although in many gardens they are so treated, and they bloom well; but if the roots be lifted during the summer, properly dried, then stored in a cool dry place, and replanted in fresh good soil in the autumn they will repay the treatment, whilst the offsets grown separately the sooner become flowering bulbs.—A. D.

[We have seen the Talips referred to by our correspondent, and confirm his choice. Apart from the effective "Darwine," the trio, macrospila, Picotee, and Golden Beauty, would be difficult to excel for flowering in masses in May.]

THE FLOWER GARDENS OF VICTORIA (AUSTRALIA).

MOST people I have met in England seem to have an idea that Australia is a scorching sun-baked land, ever thirsty and parched, and seem filled with incredulity when told that it can grow the lovely flowers and plants that it does. Now this state of things is much to be deprecated and wondered at, for with so many hundreds of persons passing between England and Australia every week, it is time the folk here had a brighter, pleasanter, and at the same time more correct idea of the place they may be merely going to visit, or perhaps think of making their future home, so that when they bid farewell to this fair land they may not leave with a sense of saying "good-bye" to all that goes to make up an English home, and especially an English garden.

However, I shall endeavour to give you a layman's ideas or remembrances of average gardens in and around the suburbs of Melbourne, and in certain country districts where it has been my good fortune to have been, when I had a good opportunity to judge how imported flowering plants behave in their adopted country. I propose first of all to give some slight idea of our climate in the colony of Victoria, as a preface, so that you can understand some of the external conditions under which our plants and flowers grow.

Briefly then, we have two very warm months—viz., January and February. These form our midsummer. Beginning to get warm in November, December gradually becomes warmer as the days slip by. Flowers and shrubs commence to wear a jaded look. January comes along, and we find this condition increasing until in February the thermometer generally reaches its highest point, which varies according as the season be a mild or severe one, as in any other part of the world. Now the gardens and country generally look distressed, the earth is baked hard, and Nature, save in some instances, appears worn out with struggling against long odds, and is only saved from downright death by a timely change and a good shower, which puts enough vigour into plant life to sustain it. Of course, by the plentiful application of hoses and sprinklers, for the use of which there is a small tax, hundreds of gardens are kept in proper state, and the dews at night, along with this and the humid atmosphere make things grow in a semi-tropical manner.

Then again the heat is not continuous, and sudden cool changes occur after a few days' heat; rain falling, the earth is cooled, and it seems as if these changes were sent to keep things going. But alas! in many places inland the long-looked-for change may not come for weeks or months, and then comes a drought, which seem to recur periodically. I am, however, speaking of places which are within 100 or 200 miles from the coast, and not too hot for the aborigines. So, to sum up the summer—it is a very warm or hot season, the temperature going up at times to 105° and 106° at rare intervals near the coast, with an average of about 90° F., varied by several cool days together and a recuperation. For instance, we read of the present summer of birds dropping down dead off the branches from the great heat, and then a few days later so cold that all are wearing winter clothes and are burning fires in their houses. One thing I have forgotten to mention, and that is the burning north winds, which, blowing from the sun-baked interior, swoop down over Melbourne and suburbs, parching up everything for the time being. Strange to say these are becoming of less intensity, and do not last as long as in the earlier times, a phenomenon evidently due to civilisation and alteration of the surface of the country.

At length in March a change begins to be appreciable. Hot days grow less frequent, and autumn creeps on apace. Lovely days with gorgeous sunsets become the order of the season, and April sees the first of the wintry rains, but not till May is well upon us do we get the cold weather. Rains are frequent and wet days plentiful, and the earth seems to have taken a new lease of life. In June we have the true winter weather. Cold, clear, sharp nights, rain, hail, and frosts, and last year snow fell heavily. Growth is, of course, slow, or arrested almost, and not till July is gone and August is with us does the earth seem to re-awaken and respond to the voice of spring.

Many of these winter days are lovely in the extreme. Perhaps fogs (but not of the smoky London sort) and frost at night, cold, sharp mornings, but lovely sunshiny middays and afternoons. Days in which one loves to bask in the warm sunshine and enjoy the clear atmosphere with a sky as blue as that of Venice. These are the days one feels glad to be alive, for they are charmingly exhilarating.

The end of August and beginning of September sees the plant-life awakening everywhere. Plants can almost be seen to grow in the humid air and soil; all the fruit trees leaf and blossom; the grass and Cape weed, introduced by the late B. Von Mueller, with its lovely composite bright yellow flowers, are a treat to behold; and now, where once hard-baked clay was to be seen, with not a trace of verdure, there spring up, as if by magic, all sorts of flowering grasses and weeds, which seem to fairly revel in their new existence. Gardens are in their gayest attire, and need lots of weeding and cleaning. This continues until the end of October, when the first faint hot breaths begin to be felt, just sufficient to remind the flowers that their time of trial is coming. So we come round to the warm summer days again in November.

I shall now speak of the gardens and their occupants in these respective seasons, trying to put a mental picture before your eyes, a picture as seen and described by one who is pleased, as an amateur, with the scene, and tries, however imperfectly, to describe it to you, who may in comparison be looked upon as true artists.

Beginning at the commencement of summer—viz., in November—one finds the gardens looking very gay and full of freshness. Geraniums of all sorts grow and bloom in great profusion. Columbines, Foxgloves, and some late Freesias, Cowslips, Primroses, Polyanthus, and other late spring bloomers are growing almost if not quite as well as in any English garden. Auriculas are less common, but are cultivated in the higher altitudes to great perfection. Pelargoniums make a splendid array, and grow in almost any locality to the verge of wildness and in the greatest variety, the fine pink one known to us as the "Azalea." Pelargonium being especially fine and a free grower, blooming well in the hottest weather. Carnations are in almost every garden, and are remarkably fine, a large delicate pink one being a general favourite. The White Prince and the Clove-scented dark crimson share this honour also. I have seen nearly an acre of these lovely scented plants in one nursery, the perfume from the flowers being exquisite. Petunias thrive amazingly, and with a minimum of attention. Whites, purples, pinks, single and double Phloxes are easily grown, and afford an immense variety of colour.

Pansies and Larkspurs can be kept blooming nearly all the hot weather with very little care, while Ericas, Epacris, and Heaths are plentiful and of all varieties, the Australian climate seeming particularly suited to them. Many varieties are indigenous, and may be found in the wild state in many places in New South Wales. Irises do well, and make a splendid show in the earlier summer months, the Japanese Flag Irises being particularly fine, with their handsome foliage and large Clematis-like flowers, both single and double, and from 5 inches to 7 inches in diameter, varying in colour from the darkest blue to rose, salmon, red, purple, crimson, pure white, orange-yellow, striped and blotched. Our climate is also specially suited for the Amaryllis family, and they require little care, and the flowers of white, rose, vermillion, maroon, and purple are a treat to see, so well do they blossom. Tecomas, Sweet and Everlasting Peas, require plenty of water and looking after. Balsams, Gladioli, Dahlias, Cockscombs, Asters, Marigolds fairly blaze in the bright sunlight. In fact for the latter flower the heat seems to be essential for the proper development of the blooms, and a border of these on the lawn at our big racecourse at Flemington on the day of the running of the Melbourne Cup race has gained a world-wide fame for its lovely sight. Fuchsias, Pentstemons, Foxgloves, Hollyhocks, Zinnias, Coreopsis, Cinerarias, Stocks of all hues, single and double, bloom well, but require plenty of hose and attention.

When summer is at a white heat, so to speak, and many gardens are looking a little seedy, those who have planted Mesembryanthemum and Portulacas are well repaid. It is a fact that the hotter the day the better do these bloom. The former grow wild on all the seacoast cliffs, and when in a garden and cared for are simply dazzling in brilliancy. Golden yellows, pale crimsons, and snow whites, all look at their best, and their icy-like thick leaves have a cool appearance. Nasturtiums also seem to revel in the heat, the leaves growing as large as good-sized dinner plates, and on any fence or wall this beautiful plant grows ranker than a weed, and the strange admixture of colours, due to the bees, I believe, presents an ever varying sight, while the green leaves are a delightful rest to the eyesight in days almost too bright.

Again I must sing the praises of a favourite flower of mine. I refer to the double Pink or Ivy-leaved Geranium. This plant makes the poorest garden look gay in the hottest months, and will grow in almost any place where a piece is thrown simply on the surface in the spring. I have seen several fences converted into what were seemingly hedges, and in one back yard in spite of fowls and pigeons laying and making their nests in it, I have seen it all through the summer just one blaze of lovely delicate pink. Its long stalks grow through the green foliage, and blossom in huge clusters. If the pale blue Plumbago is here and there planted with it, the effect is most artistic, for this also grows splendidly. Indeed, in one of our public gardens round the Melbourne Treasury offices I have seen it in a long neatly clipped hedge some 5 feet high and full of blooms.—(Read by DR. ERNEST D'OMBRAIN of Melbourne at a recent meeting of the Horticultural Club).

(To be concluded.)

CHEMISTRY IN THE GARDEN.

(Continued from page 312.)

THE fertility of soils depends to a considerable extent upon their physical properties. The presence of sand, clay, humus, and carbonate of lime has a great deal of influence in determining the physical condition of soils, for each of these proximate constituents possess different properties, and consequently the character of a soil will depend to a considerable extent upon which of them predominates.

THE PHYSICAL PROPERTIES OF SOILS.

THE WEIGHT OF SOILS.—On page 312 we gave the analysis of three soils in parts per 100, or what is termed the percentage composition—i.e., every 100 lbs. of soil contains so many pounds, or parts of pound's weight of certain substances. We find on weighing equal volumes of different kinds of soil that the weight of each varies considerably. Thus the approximate weight of—

1 cubic foot of dried sand	is from	110 to 120 lbs.
1 " " loam	"	90 to 110 lbs.
1 " " clay	"	70 to 80 lbs.
1 " " leafmould	"	55 to 60 lbs.
1 " " peat	"	40 to 55 lbs.

It is very important to remember in considering the amount of plant food, as shown by the analysis of a soil, that although a sandy soil may look to contain less nitrogen, potash, phosphoric acid, and lime than a clay, it may, nevertheless, be the richer soil owing to its greater weight. To illustrate this fact let us take, for an example, two soils, each showing by analysis the same amount of phosphoric acid—viz., 0.20 per cent. The top 9 inches of an acre of a sandy soil would weigh about 3,500,000 lbs., and at 0.20 per cent. would contain 7000 lbs. of phosphoric acid; while the top 9 inches of an acre of a clayey soil would only weigh 2,500,000 lbs., and contain, at 0.20 per cent., 5000 lbs. of phosphoric acid.

The term *heavy* is often applied to a clayey soil, and *light* to one that is of a sandy nature. This is not literally correct, as may be proved by referring to the above table. The term heavy as applied to clayey soils is used to denote that they are stiff, tenacious, and heavy or hard to dig; while sandy soils are called light because they are open, porous, and light or easy to dig.

TEXTURE.—The texture of a soil will depend upon whether its particles are large or small. A soil which is made up principally of coarse particles of sand, chalk, or stones, possesses little cohesion, its particles are large and loose, and such soils will be of an open, dry, and porous nature. If the particles of soils are very minute the land will be of a close tenacious character, plastic and sticky when wet, hard and lumpy when dry. Soils are very deceptive when their particles are in a finely divided state; thus many sandy soils may be mistaken for clays, a good example of this being the brick earths near London. Chalk is of an open, porous nature when its particles are moderately large, but when finely divided it possesses a sticky and retentive character.

HEAT OF SOILS.—Nearly the whole of the heat of soils is derived from the heat rays which are given forth from the sun. When the sun is shining upon soils they absorb some of the heat rays, while others are radiated into the air. Some soils absorb more heat rays than others. In a series of experiments conducted by Durocher he found that when the temperature of the air was 90° F. a thermometer placed 1 inch below the surface of different soils exposed to the sun gave the following results:—Quartz sand, 126° F.; garden soil, 115° F.; yellow sandy clay, 100° F.; chalk soil, 87° F. This shows us that a sandy soil is able to absorb a very large amount of the sun's heat, while a chalk soil is scarcely influenced at all by it. Quartz sand has the greatest power of conducting heat of all constituents found in the soil, the worst conductor of heat being air. Sandy soils, by being open and porous, will contain much air, and although they may get very hot at the surface the heat will not penetrate to any depth into them. Consolidation and the presence of stones improves the conductive power of soils. A dark coloured soil when the sun is shining upon it becomes hotter than a light coloured one. This is shown by the fact that when the temperature of a garden soil was 115° F. a chalk soil exposed to the same amount of sun heat was only 87° F. The dark colour of soils is generally due to the presence of humus, and the light colour to the presence of carbonate of lime or chalk. It is very interesting and instructive to watch the rapid growth of crops growing on dark coloured soils, while crops growing under exactly the same conditions on light coloured soils seem scarcely to make any progress.

The presence or absence of water chiefly determines the cold or warm nature of a soil. The heat required to raise 1 lb. of water would raise 5 lbs. of quartz sand to the same temperature, consequently it requires more sunshine to warm a wet soil than a dry one. Wet soils are also cold because the heat, instead of warming

the soil, is used up in evaporating the water from it; for if 1 pint of water is evaporated from 100 lbs. of soil the soil will be left 10° F. colder than if the water passed away by filtration. Drainage is, therefore, the only cure for a cold wet soil.

Slope or inclination has considerable influence on the temperature of soils. Suppose we have three soils—one sloping towards the sun, one horizontal, and one sloping away from it. The first of these would absorb more heat than either of the others. The

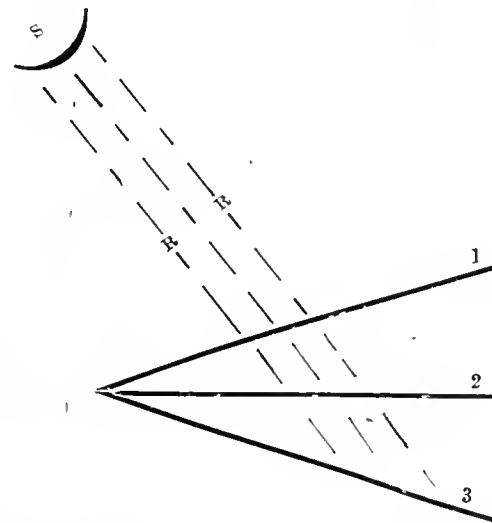


Fig. 85.—S, Sun; R, Heat Rays; SL, Slope of Land, (1) towards the Sun, (2) horizontally, (3) from the Sun.

reason of this is that the same amount of heat rays which fall on a certain area of land sloping towards the sun, will cover a wider area of land lying horizontally, and more so on land which slopes away from the sun. This is shown more clearly in the illustration (fig. 85). It might be thought that the rays would diverge, but owing to the great size of the sun, and long distance from the earth, the heat rays which reach us are always parallel.

THE HYGROSCOPIC POWER OF SOILS.—By this term is meant the power soils possess of absorbing moisture from the air. It is a well known fact that if dry salt be exposed to the air it becomes damp. The salt has attracted moisture from the air, and is, therefore, said to be a hygroscopic substance. Soils are to a certain extent hygroscopic substances, but the amount of moisture absorbed is almost insignificant. Schübler found by exposing different kinds of soil for twenty-four hours to damp air, they absorbed the following quantities of moisture:—

1000 lbs. of ploughed land	absorbed	23	parts of moisture.
1000 lbs. of clay soil	"	28	" "
1000 lbs. of loam	"	35	" "
1000 lbs. of heavy clay	"	41	" "
1000 lbs. of garden soil	"	52	" "

It is doubtful if the hygroscopic power of soils is due to the state of division of the particles, it being more probably owing to the presence of certain chemical substances in the soil, such as silicates and hydrated silicates of alumina, and also to certain salts.—W. DYKE.

(To be continued.)

OUR GARDEN.

TIMES were when revelling in the unqualified pride of possession our whims and fancies were studied by old Job, plus the orthodox routine in which his soul delighted. Old fashioned to a fault was the worthy man. Peace to his ashes, while we enjoy pleasant memories of the past. The fact that another gardener was wanted brought keenly home to us that we were old fashioned, too, by solicitations shown by lady friends that the new man should be different from the old. "Really, Squire, you know no gardener of to-day would tolerate such a muddle as old Job delighted in; you are quite behind the times." It was surprising how many gardeners wanted gardens just at that time, and yet what a task it was in choosing the right man for the right place.

"So glad, Squire, you are suited; just the man, I should think; now you will see a change." Prophetically true were those words. We have seen the old landmarks disappear, some abruptly, others stealthily, till a visitor desiring to be complimentary remarked—"The garden is so changed one would hardly know it." "One at least knows it, and regrets it," was it is feared a grumpy comment. Still the fair enthusiast persevered, "Oh! but you know, Squire, you like hardy flowers, and see how vastly X has improved the long border." It is so, alas! for most of our old favourites are improved out of existence, and in their place are the new "old-fashioned" flowers, none of which we dare gather, and many of which we cannot smell. What a soul there used to be in that long border in the early summer mornings; now it is scentless—soulless. "A wonderful collection." Yes, it is admitted; some capped with glasses because they are "miffy," others collared with zinc because they

are beloved of slugs and other beasties, and placarded with such names as should deter all evildoers of the vermin tribe.

For years there were but few beds in the greensward under the windows in which old Job set out his scarlet Geraniums, but eventually, and with infinite pains and labour, it seemed as if the drawing-room carpet had been run out over the whole space for a summer airing, then taken up, unravelled, and "boxed" for storage in our limited glass houses. "Not nearly enough glass." No; old favourites collected from far and near are relegated to obscure and crowded corners. Now and again old associations tempt us to bring home a few slips of common things, and we had a little weakness for potting or planting them ourselves, until the hint that a gentleman's place was not in the potting shed brought that pleasure to an end. Old Job used to take rather a pride in pandering to these tastes of ours, and his life was not made the less happy by so doing.

There is no reason to doubt that our new gardener was a very clever man. Mr. X's bedding out, his fruit, his flowers, his house were freely expatiated upon by enthusiasts. Ah! "his;" it used to be "the Squire's." Yet, though his ways were not ours, we would fain have kept the partnership intact, in the hope that by mutual yieldings we could as master and man have shaken hands across the narrow border of our difference; but this was not to be, and the end of it was that X. decided to go where, as he said, "his ability would be appreciated;" and he went—into a nursery. There he let chance after chance pass as "not good enough," till he gradually subsided into the jobbing staff, and now spends much of his time in "doing up" suburban gardens.

Changes, somehow, do not suit old-fashioned folk, least of all old-fashioned gardens. We have, I fear, been spoiled by old J, whose strength laid in our weakness, whose aim in fruit and vegetable growing was to provide the best of what we, not he, thought good, and whose eyes beamed with delight when, unasked, we sampled *our* fruit on the spot. Those were the days when our garden was to us a paradise of delight. We are trying to get it back to the past, but fear it will never be quite its sweet old self again.—THE SQUIRE.



ROSE SHOW FIXTURES FOR 1897.

- June 7th (Monday).—Cambridge.
- " 9th (Wednesday).—Chelmsford.
- " 15th (Tuesday).—Ryde.
- " 16th (Wednesday).—York.†
- " 18th (Friday).—Portsmouth (N.R.S.).
- " 23rd (Wednesday).—Richmond, Surrey.
- " 24th (Thursday).—Colchester.
- " 25th (Friday).—Maidstone.
- " 26th (Saturday).—Windsor and Dorking.
- " 29th (Tuesday).—Canterbury, Hereford, Sutton, and Westminster (R.H.S.).
- " 30th (Wednesday).—Croydon, Ealing, Farnham, and Reading.
- July 2nd (Friday).—Crystal Palace (N.R.S.).
- " 7th (Wednesday).—Glasgow, Hanley,* Hitchin, Reigate, Leeds,† and Tunbridge Wells.
- " 8th (Thursday).—Bath, Gloucester, Harrow, Newcastle-on-Tyne,† and Woodbridge.
- " 13th (Tuesday).—Wolverhampton.†
- " 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
- " 17th (Saturday).—New Brighton.
- " 22nd (Thursday).—Halifax and Trentham.
- " 27th (Tuesday).—Tibshelf.
- " 28th (Wednesday).—Chester.*
- " 31st (Saturday).—Liverpool.*

* A show lasting two days. † Shows lasting three days.

The above are the only dates that have as yet reached me. I shall be glad to insert in the next list any further fixtures that may be sent me, whether of Rose shows or of horticultural exhibitions where Roses form a leading feature.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

THE MALEVOLENT WEEVIL.

It must be more than twenty years ago that I wrote to the Journal, enclosing a beetle that had done much harm to my Roses and a good deal to my peace of mind, and learnt that its name was *Otiorhynchus*. It is not a very easy name to remember or to spell, but I remembered it, for I thought it suitable. It sounded like a "bad name," which the creature fully deserved. I have never, I am glad to say, come across a human being who merited such abuse; if I did, the words "Oh, you *Otiorhynchus*, you!" would mean a good deal in my mind—the malevolent weevil, which loves doing evil.

This creature, a little brown long-nosed beetle, whether *O. picipes* or *O. sulcatus* I don't know or care—they are "birds of a feather"—makes it his work and delight to come out by night and gnaw away and completely destroy the inserted Rose buds in standard stocks towards the

end of April, just when they are delighting the heart of the badder by showing signs of growth.

Those who do not know the enemy are often much puzzled, as no sign of him is to be seen in the day, and even at night with a good light he is not very easy to find if you do not know his "tricks and his manners." Now why I attribute to this creature a pure love of evil is because I have never found it or seen its work on a cut-back, where it could only spoil a bud, but solely on budded standards, where it has a chance of destroying the whole plant. I have fancied that it has a preference for a stock which has only one bud, but have not been able to establish this.

Having had a severe visitation of these weevils this spring, after several years' immunity, I think I have discovered the sort of place where they hide by day. It is generally said that this is in the ground, but I do not think so; I have never had any plant attacked that stood well out in the open, or at all events but rarely—the worst attacks have always been at that end of a row or bed nearest to an old rubbishy or ivy-covered wall. Five plants were utterly destroyed before I was aware of the attack, and I visit my plants pretty often, and we have caught in four nights about four dozen of the enemy.

The stocks were planted and budded where I have never had Roses before, reaching almost up to just such an old wall, and the plants nearest the wall were almost invariably those attacked. I have actually found the creatures in the daytime on the wall out of the light, and on the wall in a little outhouse near, and under rubbish on the floor. I should think it likely that in a good open piece of ground they would be almost unknown.

Many a rising amateur, however, has to plant his stocks in just such sorts of unused corners. Let him be forewarned, and in April watch his buds daily, and at the first sign of attack go at night with a lamp. He will find most on a warm night, but some, if the attack has begun and the enemy are numerous, even on a frosty night. Let him look over the whole plant carefully, stem, bamboo stake and all. No difficulty in catching them with a sure finger and thumb, and taking care not to jog the plant; if they once fall it is very hard to find them.

Surely there is no insect Rose pest like this, which will absolutely destroy a whole plant just at its most hopeful stage in a single night; and I think I may well class along with the scoundrel sparrow (which has just got the whole of the little Apple blossom that formed on my trees) the malevolent weevil.—W. R. RAILLEM.

PROGRESS WITH MARÉCHAL NIEL.

I HAVE much pleasure in sending you some cut blooms of *Maréchal Niel* Rose. I do not know whether they deserve commendation or not, but from the surprising growth of the plant I thought perhaps your readers would be interested in a few remarks which I would like to add. I purchased a very insignificant plant some seven or eight years ago, and having no glass at the time, it was placed out of doors, but it only appeared to make progress in a retrograde direction, which was exceedingly disappointing. The foliage was very scanty, and about the size of finger nails, and the stems were about the thickness of 16 or 18-gauge wire. After I had a house erected I placed the plant in a 14-inch pot, which I buried in the corner of the bed, where it had the morning sun. To my surprise the degenerate Rose made rapid progress in the desired direction, and in a very short time I was able to discern whether it were a Rose or not. I kept it in the pot until last autumn, when I thought that perhaps there was too much accumulation of roots, and that they had insufficient room to nourish the now extensive growth. When I cracked the pot and removed it I found that the roots had worked round and round the interior, and were like so many hoops. These were cut away, and a good foundation made to receive the plant again. Last season I counted upwards of 250 blooms on it, but this year it has not done so well, owing to its being disturbed in the autumn I suppose. It now entirely occupies the roof of a house, 12 feet by 8 feet, and the main stem at the base is about the diameter of an ordinary 60-size pot.—H. M. MILLS, *Pontardulais*.

[Considering the bold treatment of the roots (which but for others taking a downward direction would have ended disastrously) Mr. Mills has good reason to be proud of his *Maréchal Niel*. Its first progress in a "retrograde direction" reminds of one of the armies in Thessaly taking up a "more favourable position in the rear"—a delightfully euphonious way of describing a retreat. The army, we think, did not make "rapid progress in the desired direction;" but the Rose, judging by the "finger-nail" test (which is a new one), has evidently made a great advance. The foliage sent with the blooms is not "scanty," but plentiful, and the leaflets would represent finger-nails $2\frac{1}{2}$ inches in diameter. We have seen larger (not nails, but leaves, and these are large enough), also we have seen larger blooms, but never heavier for the size. Those before us are unusually full and symmetrical, rich in colour, and altogether excellent. They seem to have brought into the suburban sanctum a sniff of the sweet air of South Wales. This it is hoped does not represent "retrograde progress" in alliteration, and Mr. Mills is thanked for the beautiful blooms.]

PLANTS FOR A SHADED WALL.—Will some of your correspondents kindly advise as to what can be done to cover the back wall of an *Auricula* house, facing N.N.W.? It is 13 feet long and 6 feet high, and the sun never reaches it. Ferns no doubt would grow, but would the airy dry atmosphere, suitable for *Auriculas*, be injurious to the Ferns?—T. L. C., *Birkenhead*.



CYPRIPEDIUM LAWRENCEANUM.

AMONGST the many plants, both flowering and foliage, that are so admirably grown at Syon House, none looks better at the present time than this handsome Orchid, with its bold flowers and ornate leaves. There are some dozens of plants occupying a front stage in one of the houses, and the spectacle is magnificent. Each individual specimen is in perfect health, and is producing astonishing numbers of flowers. Syon and Mr. Wythes are justly celebrated for their vegetables and fruits, but it is none the less a fact that such *Cypripediums* as the one named, with others, besides *Cattleyas*, *Odontoglossums*, *Dendrobiums*, *Vandas*, grand *Cymbidiums* and *Lælias*, the collection of Orchids is in such condition as would be no disgrace to a specialist in their culture who grows nothing else. No structures have been specially erected for them, and big sums have not been expended in their purchase. They are housed with other plants, and must give a good return for the space they occupy and the time spent in attention to them, or they would have to go to the wall, and this, so far as can be seen at the present time, is not likely to be yet awhile.—WANDERER.

NOTES ON AERIDES.

JUDGING by descriptions given by collectors and the appearance of newly imported plants of this genus, there are not many Orchids that can be so improved as these by carefully considered culture. We are told that the plants in most instances are straggling-looking, bare of foliage along yards of length of stem, and though flowering freely, not by any means so ornamental as a well-cultivated specimen. This, of course, is in a measure true of all species, but all species have not the same noble appearance when out of flower as the various plants comprised in this and the somewhat similar genera *Saccolabiums* and *Vandas*.

Unfortunately they have been for a long time much neglected by orchidists, but given plenty of room for their full development there is no other section in the order more truly ornamental. Take a large, well grown and flowered plant of *A. Fieldingi*, its immense racemes pushing out in all directions, backed by the striking and beautiful dark green foliage, and no one will fall out with you for calling it a thing of beauty. Even the old *A. odoratum*, the species upon which the genus was founded over a hundred years ago, and one of the cheapest and most easily grown of all Orchids, is still one of the most charming.

One drawback to the culture of large specimens is the space needed for them, and this has doubtless led many to discontinue it. But in several places there are vineries almost empty during the summer months that would make capital homes for them with no detriment to the Vines, while small plants of most of the kinds look well and flower freely suspended from the roof of the ordinary Orchid house. In the usual plant stove, too, they may be accommodated, and in any of these positions will not fail to give a good account of themselves at their proper flowering season. But the best of all places is a large spacious structure kept up to a moist tropical temperature and not unduly shaded.

Here growth will be free, but the foliage will be to some extent consolidated as it is formed, and by a gradual reduction of the temperature as winter approaches, and a corresponding rise in spring, the plants will keep to their annual cycle of growth and rest. This is far superior to the old-fashioned plan of drying off—copied no doubt from Nature, but still very unsatisfactory in practice. There are many ways of growing *Aerides*, the plants taking as a rule with a good will to whatever is provided as an artificial rooting medium.

Being true epiphytes, it was formerly the custom to give a bare root run over large blocks or some description of pottery ware, but this treatment is too poor to obtain the best results. Sphagnum moss is the best material to use, as it holds ample moisture for the needs of the plant, while if kept in proper mechanical condition by the addition of plenty of large rough lumps of charcoal and potsherds it cannot settle down to a close inert mass. The receptacles will vary in size with the different species. For instance, no one acquainted with Orchids would think of potting *A. odoratum* and *A. roseum* under similar conditions.

The former being a much larger habited kind would need more room and a very rough compost, the latter a small pot or basket, and the rooting medium in ratio with its size. A slight

difference in temperature should also be allowed, those species coming from the higher mountainous part being kept cooler and more airy than the inhabitants of lower altitudes. Root moisture is a point needing consideration, for although the Orchids named are nearly aquatic in their needs during the time growth is most active, a considerable lessening of the supply is necessary when both root and top growth are quiet.

The odoratum section comprises some very beautiful plants, one of the best being the splendid *A. Lawrencei*, a plant worthy of the greatest care. It has longer racemes and more brightly coloured blossoms than *A. odoratum*, and was introduced from the Philippine Islands by Messrs. Sander & Co. in 1883. The typical

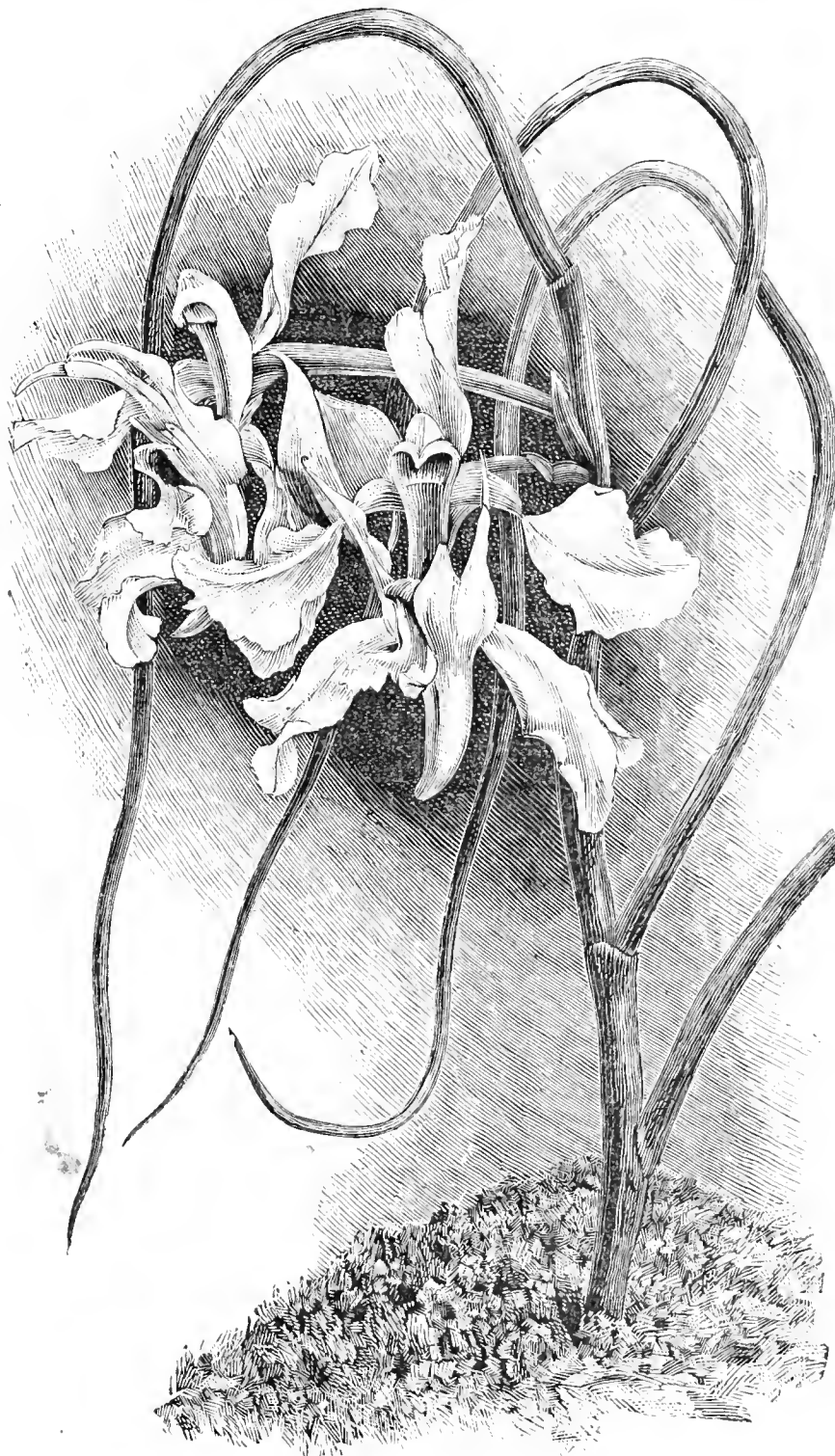


FIG. 86.—AERIDES VANDARUM.

odoratum is too well known to need description, and *A. suavisimum* differs from it in having smaller flowers of a pale lilac tinge produced about a couple of months later in the year. *A. virens* has been described as a poor form of *A. odoratum*, but this is hardly true of some of the best forms. It is, however, a very similar plant, and was introduced from Java in 1843.

The beautiful *A. Fieldingi* flowers in May and June, and is known as the "Fox Brush" *Aerides*, owing to the gracefully curved racemes of flowers. It is one of Messrs. Veitch's introductions, their collector, Mr. T. Lobb, having sent it home in 1850. *A. crispum* is a fine species, not so large in habit as some of the preceding, but producing elegant racemes of large fragrant blossoms; and *A. crassifolium* is another favourite kind that should be grown by all. *A. Vandarum* (fig. 86) is totally different in habit and flower, bearing cylindrical leaves, and short few-flowered racemes, after the style of *Vanda teres*. It does with less heat than some other species, being found growing naturally high up on the Himalayas.—H. R. R.

ROYAL HORTICULTURAL SOCIETY.

DRILL HALL, MAY 11TH.

THE meeting at the Drill Hall was a very interesting one, though not so large as several have been of late. Each Committee had work to do, but as usual the bulk fell to the Floral.

FRUIT AND VEGETABLE COMMITTEE.—Present: Philip Crowley, Esq. (in the chair); with the Rev. W. Wilks and Messrs. T. F. Rivers, J. Cheal, G. Bunyard, J. H. Veitch, A. F. Barron, A. H. Pearson, W. J. Empson, A. Dean, J. A. Laing, W. Bates, W. Farr, G. H. Sage, G. Wythes, Jas. Smith, H. Balderson, G. T. Miles, F. Q. Lane, G. W. Cummins, G. Reynolds, J. Willard, R. Fife, and G. Norman.

Mr. W. J. Empson, gardener to Mrs. Wingfield, Ampthill House, sent a splendid collection of vegetables, comprised of Peas in pots Carter's Lightning, Leek Holborn Model, Tomato Earliest of All, Cucumbers Rochford's Market and Blendworth Perfection, with Asparagus, Broccoli, Potatoes, French Beans, and so forth. Considering the time of the year the exhibit was one of exceptional merit (silver Knightian medal).

Mr. G. Wythes, gardener to Earl Percy, Syon House, sent a collection of Figs St. John and Brown Turkey, and also a box of very fine well-coloured fruits of Hale's Early Peach. Mr. Jas. Barkham, Longford Gardens, Isle of Wight, sent fruits of a Cucumber the result of a cross between Rochford's Market and Improved Telegraph. Mr. M. Russell, Mytchett, Farnborough, sent fruits of Strawberry Russell's Early Giant, a fruit of a very wrinkled surface. Mr. A. Bishop, Westly Hall Gardens, Bury St. Edmunds, sent a specimen of a seedling Melon which, considering the earliness of the season, was of good flavour and large in size.

In the Apple competition Mr. J. C. Tallack was awarded first prize with Court Pendu Plat. Mr. A. J. Reid, gardener to F. C. Carr Gomm, Esq., Farnham Chase, was second with Golden Reinette.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); with Messrs. J. Fraser, C. T. Druery, H. B. May, H. Herbst, R. Dean, J. Hudson, J. Jennings, J. F. McLeod, H. S. Leonard, G. Nicholson, J. Fraser, R. M. Hogg, W. Bain, J. D. Pawle, E. Mawley, J. W. Barr, J. Walker, H. J. Jones, D. B. Crane, E. Beckett, G. H. Engleheart, and G. Paul.

Mr. J. R. Box, Croydon, arranged a very effective exhibit of Gloxinias and Maidenhair Ferns. Some of the varieties were of fine quality. The same exhibitor also sent a few flowers of double Begonias (silver-gilt Banksian medal). Five boxes of superb Maréchal Niel Roses were staged by Mr. J. Walker, Tbame. The blooms were solid, of good colour, and very fragrant (silver Flora medal). Mr. G. Mount, Canterbury, made himself conspicuous by staging a magnificent collection of Roses, including La France, Mrs. J. Laing, Captain Hayward, Ulrich Brunner, and many others (silver-gilt Flora medal).

Mr. Capp, gardener to Sir W. Peerson, Paddockhurst, Crawley, sent an exhibit comprised of Gloxinias and Zonal Pelargoniums. Messrs. W. Cutbush & Sons, Highbate, were represented by a group of bardy flowers, in which Doronicums, Primulas, and Alyssums were conspicuous (bronze Banksian medal). A large extent of tabling was occupied by Messrs. Barr & Son, Covent Garden, who showed a fine collection of their famous Tulips. English, Darwin, Cottage Garden, and Parrot sections were represented, and it was easy to realise from the method of arrangement how beautiful these flowers are from a decorative point of view. Flowers of all colours were shown, comprising all forms known in the Tulip world (silver Flora medal). On one side of the Drill Hall entrance was a fine bank of Roses, exhibited by Messrs. W. Paul & Son, Waltham Cross. Amongst others were noticed Gustave Piganeau, Charles Lefebvre, Duke of Edinburgh, Jeannie Dickson, La France, and Fisher Holmes, together with a box of cut blooms of Maréchal Niel that it would be difficult to beat. The firm also exhibited blooming plants of the new Tea Rose Enchantress (silver-gilt Flora medal).

Messrs. J. Cheal & Sons, Crawley, showed a small collection of hardy flowers and Violas. Among the former were Genistas, Pyruses, and Azaleas in variety (bronze Banksian medal). Messrs. Kemp & Wilson, Mortimer Street, W., showed floral designs in the shape of wreaths, bouquets, and baskets of flowers (bronze Banksian medal). Mr. J. Hudson, gardener to Messrs. De Rothschild, Gunnersbury House, sent flowers of Hymenocallis macrostephana tastefully arranged in an earthenware vase. Mr. B. Ladbams, Southampton, sent flowering plants of a new Pink, Diamond, with Tulipa flava and a Calla of large size. Pæonies were largely exhibited by Messrs. Kelway, Langport, being the first of the season. Amongst others Cardinal Vaughan, Diamond Jubilee, and Longest Reign were very striking (silver Banksian medal).

Messrs. Paul & Son, Cheshunt, were represented by hybrid Rhododendrons, Iris cristata, Trillium grandiflorum, Pyruses in variety, with Gemms, Roses, and other flowers, the whole making up an effective and interesting exhibit (silver Flora medal). Tulips in charming variety were exhibited by Messrs. Jas. Veitch & Sons, Chelsea. All sections were represented, and in addition to these flowers the firm showed Tritonias, Ixias, Deutzia hybrida Lemoinei, and Rubus idelicus (silver Banksian medal). Messrs. Thos. Cripps & Son, Tanbridge Wells, showed plants of Deutzia Lemoinei and a few Cypripediums. An interesting exhibit came from the Royal Gardens, Kew, comprising Rhododendrons Kewense, Luscombei, and cinnabarinum, with flowering branches of Cytisus purgans, Ribes speciosum, Pyruses Pingo and Schiedeckeri, and Amelanchier alnifolia.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); with Messrs. J. O'Brien, De B. Crawshaw, H. M. Pollett, J. T. Gabriel, W. H. Young, F. J. Thorne, H. J. Chapman, E. Hill, J. W. Bond, C. Pilcher, W. Cobb, J. Douglas, and H. Williams.

Mr. G. W. Cummins, gardener to A. H. Smees, Esq., The Grange, Wallington, staged a handsome collection of Orchids, comprised mostly of Cattleyas, Lælias, and Lælio-Cattleyas in splendid condition (silver Flora medal). Mr. Cragg, gardener to W. C. Walker, Esq., Percy Lodge, Winchmore Hill, sent a showy group of Orchids. There were Lælias, Cymbidiums, Odontoglossums, Cypripediums, and others (silver Flora medal). Messrs. F. Sander & Co., St. Albans, exhibited a small collection of Orchids. Amongst others Cattleya Mossiae, C. Skinneri virginale, C. Schrodæra alba, C. Wm. Murray, Odontoglossum vexillarium, and Masdevallias were conspicuous.

Very attractive were the Orchids sent by Messrs. J. Veitch & Sons, Ltd., from Chelsea. The arrangement of the several handsome plants at disposal was very effective, small Adiantums being used as a groundwork. Oncidiums and Odontoglossums were gracefully beautiful, Dendrobiums of splendid quality, Masdevallias showy, with Cymbidiums, Lælias, Cattleyas, and Cypripediums, aided in the general excellent effect (silver-gilt medal). Besides these prominent exhibits of Orchids, several smaller ones came from numerous exhibitors. Mr. Methven, gardener to Marquis Camden, Bayham Abbey, sent a fine Cattleya Mendeli with a spike carrying seven flowers.

CERTIFICATES AND AWARDS OF MERIT.

Anemia rotundifolia (W. Bull).—A graceful Fern with long fronds composed of round pinnae (first-class certificate).

Cypripedium Bellatulo-vexillarium (Mrs. Briggs-Bury).—A handsome hybrid. The colour of the dorsal sepal is white at the lower part, shading to deep claret at the margin. This, too, is the colour of the pouch. The petals are white, spotted and flushed claret (award of merit).

Cypripedium Chapmani magnificum (H. J. Chapman).—Deep claret is the colour of the lip of this beautiful Orchid. The broad petals are almost entirely covered with deep claret crimson spots. The round dorsal sepal is white at the margins, becoming maroon towards the base (award of merit).

Lælio-Cattleya Hippolyta, Dulcote variety (W. Cobb).—A superb form of the type (award of merit).

Lilac Senator Holland (W. Bain).—A handsome double variety. The truss is large, and the colour dark (award of merit).

Odontoglossum Andersonianum Bogaerdianum (D. B. Crawshaw).—The spots and blotches on this are very fine, being bright chocolate (award of merit).

Rhododendron Pink Pearl (J. Waterer).—This is a very beautiful variety, with large pink flowers (award of merit).

Streptocarpus achimenesiflora (J. Veitch & Sons, Ltd.).—This is a hybrid, resulting from a cross between a white-flowered hybrid and a *S. polyanthus*, evidences of which may readily be seen. The colour of the flower is pale blue (award of merit).

Trollius napellifolius (Barr & Sons).—The flowers of this are of medium size, and very rich in colour (award of merit).

RED SPIDER AND SICKLY GOOSEBERRY FOLIAGE.

ON page 338 Mr. G. R. Allis mentions the pale and sickly appearance of the foliage of Gooseberries and Currants, and attributes it to frost. Now, I have not seen the particular case to which he refers, and am not disputing it; but it is such a very common error to ascribe to frost what is really an attack of red spider, that I venture to call attention to it at the present time.

I was examining a large fruit plantation last week, and came across some bushes of Gooseberries as described, pale almost to whiteness, and their sickly appearance was apparent at a distance. I could see at a glance it was the old enemy, and by carefully plucking a few sprays in order not to dislodge them, I carried them to the "Rose and Crown" to show people and educate them in detecting early attacks.

The owner of the plantation came in, and asked me had I noticed how the frost had turned the foliage of the Gooseberries yellow. "No," I replied; "but you have the old enemy in force, and that is the cause." I asked the landlord for a sheet of white paper, and tapping the shoots sharply on it, hundreds of spiders were racing in every direction. Now, Mr. Editor, may I ask all fruit growers who are interested in this question to give this simple plan a test, and for the sake of information oblige with brief replies? I found out some years ago, when giving lectures on insect pests (illustrated under the microscope, as I have every season since), that these spiders (or mites) hatch out in the coldest and wettest weather in the beginning of February, and there remain, as those referred to have, through one of the wettest, coldest, and most unlikely seasons known. The red spider eggs on Apples and Plums are only just hatching out, and from the red eggs, young spiders appear identical to the Gooseberry spiders.—J. HIAM.

[Without for a moment suggesting that Mr. Allis was mistaken, we have no doubt Mr. Hiam is correct in his assumption that the mite known as red spider does much more harm to Gooseberry bushes early in the year than many persons suppose. What those persons want to know who have to deal with the enemy is the safest and surest method to pursue for its extirpation.]

THE YOUNG GARDENERS' DOMAIN.

FORCING FRENCH BEANS.

I THINK if "Stone Warrilow" were to give what he calls the "potting-on system" a trial he would find out it possessed some advantages. If the Beans are sown in 60's, and the plants transferred to larger pots of fresh sweet soil, it must be better than sowing in the fruiting pots, in which the soil is liable to get stagnant; and he would also find that he could pick Beans a week or two earlier than by the method he advocates. As to the crops, I am able to say that we pick twice the number of pods from our eight plants in a 16-size pot that he does from his sixteen plants in one of his 11-inch pots. Moreover, it would not do for us to wait till our Chrysanthemums are over before sowing, as we have picked two or three crops before then. My chief has taken the first prize with a collection of vegetables at a November show with French Beans as a weighty dish grown by our potting-on system.

"Stone Warrilow" says he cannot see any beneficial results arising from the use of liquid manure. Can he tell us why French Beans should not be benefited by liquid manure the same as are other plants? We find it is a great help both to the plants and the swelling of the pods. There is a gardener about a mile from us who used to sow his Beans in the fruiting pots, but seeing our system he has followed it ever since with much better results than before.—W. W.

VIOLETS.

THIS flower is held in the highest estimation for its exquisite and delicate perfume. There are many varieties, but it will be sufficient to describe the culture of a few of the best, as from the narration the treatment of the rest may be readily gathered. My favourite trio consists of Marie Louise, pale lavender; Neapolitan, mauve with white eyes; and Comte de Brazza or Swanley White.

These should be propagated in April. When the plants have flowered for the season remove them from the soil in which they have been grown, and divide them into single crowns, cutting off all runners, selecting the strongest only, and plant them 4 to 6 inches apart with a trowel in a cool frame, pressing the soil firmly round their roots; close the frame for a few days, and shade from bright sunshine until they show signs of growth.

When rooted, so that they can be removed with a ball, they should be transplanted to their summer quarters. A rich and well-prepared piece of ground with a north-west aspect suits them admirably; plant 9 inches asunder, and syringe them with pure water in the evenings of dry hot days, pinching off all runners as they appear, and keeping the bed free from weeds. Nothing more is required during the summer months.

For pot culture the best compost is formed of half turfy loam, half decayed manure and leaf mould, well mixed and turned over two or three times during summer. This should be ready for use by the end of September. At that time the plants must be removed from the bed with as much soil to their roots as possible. They should then be divested of all side shoots or runners and placed in 7-inch pots. The pots may be well drained with dried broken bones instead of potsherds, as the roots cling to the bones, which gives vigour to the plants, and makes them bloom more profusely. Weeds and decayed leaves must be removed, and water given when necessary, care being taken to wet the leaves as little as possible. In March and April, if the plants have been properly managed, they will produce abundance of flowers, and consequently require much more moisture than during winter.

To have an abundance of fine flowers of Russian Violets in the autumn and early spring, these should be planted in beds near a wall having a warm aspect. The soil should be light but very highly manured, with a large quantity of sand underneath the top soil. Plant in rows about 4 inches apart, and keep well watered. Every year in April, immediately after the plants have ceased flowering, the beds should be broken up, the soil renewed, and fresh plants put in for another year.—C. W. M.

THE MELON.

(Continued from page 397.)

To insure a good set, if the weather is at all favourable, air should have been admitted early, in order that the atmosphere of the house may be dry. If, on the other hand, it is dull or wet, additional pipe heat must be resorted to, but this ought not to be too fierce, as it would encourage red spider to make its appearance. As there are generally pollen-bearing and fruit-producing flowers open at the same time on each plant, pollen from the former should be transferred to the latter. If necessity compels fertilising with different varieties the fruits should be marked, and unless the seed be required for experimental purposes it must not be saved, as a mixture of varieties would occur, and at least some of them inferior.

When the fruits are set and swelling more atmospheric moisture will be required, but be careful with the syringe for some time, contriving to maintain a genial temperature by damping the walls and paths of the house rather than by syringing the plants. Should, however, red spider make its appearance the syringe must be resorted to, being careful not to wet the young fruits too much, or they may become marked and have an unsightly appearance. All through the growing period be very careful with ventilation, admitting a little air with a gradual increase is best, always striving to avoid draughts. When it is observed which fruits are swelling freely three will be sufficient on a plant if they are expected to be very fine. As swelling takes place more water will be required at

the roots, an occasional application of weak liquid manure or a light dressing with some proved fertiliser being very beneficial.

Supports must be placed under the fruits. Some growers use boards suspended by string, others nets made especially for the purpose, and both are good. As the fruits continue swelling copious supplies of water will be found necessary, never allowing the roots to become dry, or the Melons will crack and be useless. Continue occasional applications of liquid manure to help the fruit to attain to a good size. When fruits change colour less water will be required at the roots, and less moisture in the atmosphere, at the same time admitting more air, and then when the fruit is ripe it will be found of good flavour. To keep up successions sow at intervals of one month sufficient stock to replenish the whole space, or grow in pots, as the case may be.

It is advisable to renew the border after the fruits are ripe, also to thoroughly cleanse the house so that all insect pests may be eradicated, and a clean start made with the young stock. Melons are subjected to canker. On this being observed a little fine quicklime dusted on the affected part will be found an efficient remedy.—SEMPER.

BOUVARDIAS FROM ROOT CUTTINGS.

THE usual treatment of the Bouvardia is to dry the plants off after they have done flowering, and then to place them in heat to produce cuttings. The cuttings are taken with a heel when the young growths are 2 inches or 3 inches long, inserted in prepared pots, and placed in the propagating frame. I should like to bring to the notice of other young gardeners what I have found in practice to be a better system—namely, to propagate by root cuttings. To obtain these dry the plants off in the usual way, but instead of placing them in heat to make young growths shake them out of the pots, remove the soil from the roots, and cut them back to about an inch from the old stem. These roots are cut into lengths about 1½ inch long, and spread on the surface of prepared pans. Any light soil is suitable. Cover the roots about a quarter of an inch in depth with finely sifted soil, and place in the propagating frame or on a hotbed. The growths from these small pieces of roots will be found to almost equal in growth those from the plants introduced into heat, but with this difference—the growths from the roots are already plants, while those from the plants have still to be rooted. And it is here the great saving in time comes in; while the cuttings are making roots the rooted cuttings are making plants, and so gaining a great advantage. After a thorough trial of both systems I should be sorry to return to cuttings for producing strong plants for decorative purposes.—J. C., Lancashire.

THE APPLE.

THE Apple, *Pyrus Malus*, natural order Rosaceæ, is a native of the British Isles and most parts of Europe. It is the most useful of all cultivated fruits, and probably the most extensively grown. The Crab was known in the earliest times, and our cultivated Apple was most likely introduced by the Romans. Pliny, the Roman historian and naturalist, knew over twenty varieties. The Apple, as Mr. Wright says in the "Fruit Growers' Guide," is the rich man's fruit and the poor man's fruit, and should be planted in every garden.

SOIL.—The Apple does best in loam containing a little sand. In such a medium Apples colour well and grow to a large size; the trees continue in health and bearing, and are seldom attacked with disease. A deep soil is not required to grow Apples in, 2 feet being ample. In wet localities the ground will require to be well drained before planting Apple trees, as they generally do better in dry than wet soils if not thoroughly drained.

SITUATION.—An open position, facing south, east, or west, sheltered from the east, as wind from that quarter is so prevalent when Apple trees are in flower.

STOCKS.—Mr. Rivers has raised several varieties of Paradise stock from seed, and they are remarkable for promoting early fruitfulness in Apple trees worked on them. The French Paradise is supposed to be the best dwarfing stock for dessert Apples, and all worked on it come into bearing quickly, give heavy crops, and in wet districts are free from canker when those on Crab or free stocks are not. The Crab is the best stock for standard and half-standard Apple trees, and is noted for its hardiness.

PRUNING.—That the knife is too much used on Apple trees in most gardens is my opinion, and instead of cutting back every year I would, if possible, not prune at all after the heads are formed, except to take out any branches that are too close or badly placed. After a couple of years all buds will be fruit buds where, under close pruning, there would be nothing but growth. If Apples on Paradise stocks grow too strongly and do not fruit freely lift and replant the trees, using some fresh loam if procurable. If on the Crab or free stock root-pruning is best, cutting a trench round the trees and filling with fresh loam. Mulch round the trees after either operation—in fact, all fruit trees are the better for a mulching every year; it arrests evaporation and prevents some soils from cracking in dry weather.

VARIETIES.—Twelve good varieties for dessert are Mrs. Gladstone, Irish Peach, Beauty of Bath, Worcester Pearmain, King of the Pippins, Blenheim Pippin, Wyken Pippin, Cox's Orange Pippin, Ribston Pippin, Cockle's Pippin, Claygate Pearmain, and Sturmer Pippin, ripening in the order named.

It is hard to single out twelve sorts and say they are the best cooking Apples, soil and climate having a wonderful influence on the size, colour, and flavour of some varieties. Lord Suffield, Domino, Ecklinville, Warner's King, Greenup's Pippin, Peasgood's Nonesuch, Mère de

Ménage, Lord Derby, The Queen, Bismarck, Alfriston, and Bramley's Seedling are all good.

Some varieties of Apples, like many other fruits, refuse to bear in one locality, and are most prolific in other places, all under good management. That the form of training and stock may influence the growing and fruiting I admit; but still some will not bear and others canker. The worst for canker, I find, are Ribston Pippin, Tom Putt, Cellini, Lord Derby, Lord Suffield, Bismarck, Alfriston, and Claygate Pearmain; those that crop the lightest are Gravenstein, Peasgood's Nonesuch, Blenheim Pippin, and Moulton Pippin.—W. T., Ireland.



FRUIT FORCING.

Cherry House.—Cherries are ripening rapidly in the house, brought forward gently from the early part of the year, and the fruit must be kept dry; but air moisture is necessary for the health of the trees, and may be secured by damping the border occasionally with the syringe, air being admitted constantly, or condensation will seriously affect the fruit. Sprinkling the border is apt to mislead as regards its condition, which at this stage must be kept moist, therefore if necessary a thorough supply of water must be afforded without delay. Tie in the shoots as they lengthen, and stop those not required for training at the fifth leaf. Black aphides can be kept under by dipping and rubbing the leaves or shoots in tobacco water. Ventilate freely on all favourable occasions, and when the external conditions are unfavourable recourse must be had to the heating apparatus to insure a circulation of warm dry air. Netting will be necessary over the ventilators to prevent birds attacking the Cherries.

Cucumbers.—Plants that have been in bearing all the winter will now be showing signs of exhaustion. Remove them, and after putting the house into a state of thorough cleanliness, taking out the old soil and introducing fresh compost, place out strong healthy young plants without delay. These will come into bearing quickly, and give abundance of fruit for some time. Assist young plants showing signs of weakness by removing the staminate flowers and the first fruits, stopping at every third or fourth joint; removing all weakly and surplus growths. Plants in bearing will require copious supplies of water and liquid manure or top-dressings of fertiliser washed in moderately. Extra vigour may be secured by employing a little nitrate of soda in the water, but not more than half-ounce to a gallon of water, besides it acts well against eelworm. It is better to mix the nitrate of soda with a small quantity of water, say 1 lb. to gallon, and let stand a short time, then add half pint of the solution to each 4 gallons of water employed for watering. This is only a quarter ounce of nitrate of soda to a gallon of water, but it gives excellent results in both quantity and colour of fruit.

Shading will be necessary for an hour or two in the middle of the day when the sun is hot, especially houses facing south, but shade early to prevent flagging. Houses with the roof lights facing east and west will not require shading. Little or no fire heat will be required by day, shutting off the valves at about 8 A.M., and opening them again at about 5 P.M. Syringe the plants moderately between 3 and 4 P.M., keeping a good moisture by damping the floors. If aphides appear fumigate on a calm evening and repeat early the following morning, having the foliage dry, but the floors well damped. On an attack of red spider remove the worst infested leaves, and syringe the plants with petroleum emulsion, 1 part in 50 parts water. Guano water, 1 lb. in 20 gallons of water, may be used occasionally in the evening to charge the atmosphere with ammonia vapour, or liquid manure from stables or cow houses, diluted with five or six times its bulk of water, may be used for the same purpose. Either may be applied to the roots about twice a week, the plants not being allowed to suffer through insufficient supplies of water and nourishment in available form. If mildew appear dust with flowers of sulphur, but its fumes from lightly coating the hot-water pipes are more fatal to it and effective also against red spider and white fly.

Seeds may be sown for raising plants to occupy pits and frames. A fair bottom heat should be secured by using the less decomposed material from Seakale, Vine borders, or exhausted hotbeds, which, with about a fourth of fresh material, will afford all the bottom heat now required. The nights lately have been cold, in which case close pits and frames as early in the afternoon as safe, not allowing the temperature to exceed 90°, 95°, or 100°, and afford good night coverings. See that a good top and bottom heat is maintained by duly renewing the linings.

Figs.—*Early Forced Trees in Pots.*—When the first crop on the very early varieties, such as Early Violet and St. John's, are gathered, return to the treatment applicable to trees swelling the crops. If red spider has gained a footing wash the leaves with a solution of soluble petroleum or emulsion, also the wood where there is any scale, dislodging it with a brush, syringing the trees forcibly on fine evenings until new growth is being made freely, ordinarily syringing twice a-day—in the morning and early afternoon. Where the second crop is thickly set

thin liberally, leaving the fruits near the base of the shoots, and to secure a full first crop another year be careful not to overtax the trees. Expose the fruit ripening as much as possible, and increase the ventilation. This will be the case with Brown Turkey—the finest of Figs for general purposes; and where its second crop is thickly set thin the fruits well, as there is no danger of the trees casting their fruits after this period if they are well attended to with water and nourishment. Stop the shoots and thin where crowded, for vigorous sturdy shoots produce the finest Figs.

Planted-out Trees.—The earliest started have the fruit approaching ripeness, and must not be wetted, maintaining atmospheric moisture by keeping the mulching, walls and paths, properly moistened. Moisture can be prevented from condensing on the fruit by maintaining a steady circulation of air, with gentle fire heat. Care must be taken to afford plentiful supplies of water and nutriment at the roots. When this is neglected the trees become infested with red spider, and as a natural consequence the ripening period is shortened, and the second crop is puny, rusty, and unsatisfactory. Allow the leading shoots to extend, unless unduly vigorous, without stopping until they reach the extremity of the trellis, then stop them, and cut away after fruiting to make room for succeeding fruitful wood.

Late Houses.—Excellent Figs are grown in unheated houses, producing one crop, which affords an acceptable supply of fruit in August and September. The trees are showing plenty of fruit. With the roots confined to moderate space within the house, the border concreted, and thoroughly drained with broken bricks and old lime rubbish, they should have very copious supplies of water, and be syringed twice a day. In cloudy weather, however, the afternoon syringing should be dispensed with, and in bright weather it may be performed early, with all the sun heat that can be shut in to insure the proper drying of the foliage before nightfall. The young growths in these structures should be trained a good distance apart, every growth having full exposure to light and air, so as to secure sturdy fruitful wood.

Melons.—The fruits always have flavour in degree of the solar heat, and the weather lately has been all that the early Melon grower desires. The days have been bright though the air has been cold, necessitating the employment of fires, especially at night, as it is a great mistake to allow too great a difference between the day and night temperatures. Maintain 70° as the minimum, though 65° or even 60° will do no harm when the nights are unusually cold and the days bright, 70° to 75° by day being secured artificially, admitting a little air at and above the latter, allowing an advance to 85° or 90°, and closing early so as to secure a temperature of 90° or 95° for some time. Keep plenty of atmospheric moisture in houses containing young growing plants or those swelling their fruit, gently damping the walls, floor, as well as foliage, and closing about 3.30 P.M., or as early as safe. Feed plants liberally that have their fruit swelling, not allowing them to suffer through insufficient supplies of water, and afford weak liquid manure or moderate top-dressings of fertilisers washed in. Fertilise all pistillate flowers daily, insuring a somewhat dry condition of the atmosphere, not using the knife during that period, but pinch out the points of the shoots at one or two joints beyond the fruit. Earth up plants that have set their fruits, and examine them frequently for the removal of superfluous growths, not allowing them to interfere with the principal foliage. Shade as little as possible, and only to prevent flagging.

When the fruit is cut from the earliest plants the old stem may be cut to a strong shoot near its base, removing as much of the old soil as can be picked out from amongst the roots, adding fresh in its place, rather lumpy, and well pressed down, giving a good watering. If a moist atmosphere is maintained, and the plants are syringed in the morning and about 4 P.M., they will soon start freely, showing fruit in much less time than by starting afresh. If they have healthy growths they need not be cut down so closely, but laterals taken at suitable distances, and the old shortened or cut away, the fresh laterals will show fruit at a few joints of growth. If, however, the plants are affected with canker, or from carrying too heavy crops at first, a deficiency of water, or attacks of insects are much enfeebled, it is better to remove them, thoroughly cleansing the house, placing strong plants in ridges or hillocks.

Plants in Pits and Frames.—Grand fruits are grown in these simple structures. The thing is to keep the fruit clear of the soil and fully exposed to the sun by raising them on inverted flower pots with a piece of slate intervening, as the moisture from the bed is apt to accumulate in the pot, and rising through the hole cause the fruit laid upon it to decay at that part. Admit air freely, and water only to prevent the foliage flagging. If a second crop is desired encourage about four shoots from each plant at the base of the stems now bearing, and when the fruit is cut the old growths may be removed and young shoots substituted. These will show fruit on the first laterals, every alternate lateral being rubbed off to prevent crowding. If a top-dressing of fresh compost is given the plants will be assisted to make a second growth.

A useful crop of Melons may be obtained by making up beds now of any spent material, which with mixing and turning will generate a gentle warmth, placing over it frames that have been used for Potatoes and bedding plants, and in each light a barrowful of any strong loam mixed with some old mortar rubbish or road scrapings if deficient in grit, pressing it down firmly; into this, when warmed through, turn out a strong healthy plant, pressing the soil firmly about the roots, and giving a good watering. If pits are employed the surface of the soil must be brought up to a foot from the glass and the materials firmed well, so as to prevent much settling. If the weather be bright shade

for a few days after planting. Seed may be sown to raise plants for frames at present occupied by tender bedding plants.

Pines.—Changeable weather necessitates careful attention in ventilating plants with fruits in an advanced condition, otherwise sudden outbursts of sun tell disastrously on the crowns. Admit air at the top of the house at 80°, and maintain the temperature through the day at 80° to 90°, closing at 85°; but unless it be desirable to enlarge the crowns do not quite close the house. Fire heat must be employed to prevent the temperature falling below 70° at night, and to raise it to 75° in the day, keeping the bottom heat steady at 80° to 90°. Syringe the plants two or three times a week according to the weather, and maintain the atmosphere in a genial condition, in order to secure the perfect development of the fruit.

THE KITCHEN GARDEN.

Runner Beans.—Early seed-sowing has not been a success in the case of retentive soils, and the plants have come up very irregularly on lighter warm ground. Cold winds and frosts have retarded growth considerably, and in some instances it will be found the best plan to sow more seed at once. These Beans transplant readily, and if there are enough plants in two rows to form one good one that is what should be done with them. There would also be a gain of a week or more in sowing in small pots singly, or in boxes thinly under glass and in gentle heat, hardening and planting before the plants become matted together at the roots. Thinly grown plants give the best results, those much crowded cropping lightly, being also the first to fail in a dry season. One strong plant to each pole or stake is sufficient, and these may well be a foot apart, bracing and supporting each other by means of a stake running along near the tops of the poles. Continue to shelter and protect during cold nights. Now is a good time to sow seed in quantity with a view to having rows or breadths capable of yielding pods in abundance till the end of the season. What these Beans require is a deep, rich, freely worked root run, wholly trenching the ground answering better than merely digging Celery-like trenches, the sides of which are apt to shrink away from the soil in the trench, and in a hard and dry state prevent the free spread of roots.

Runner Beans Without Stakes.—The bulk of Beans sent to the markets during the season are grown in the open fields without the aid of stakes, and the market growers' plan may also be adopted in all cases where stakes are difficult to procure. If they fail it will most probably be due to want of attention in topping, which must be done persistently, and in mulching with strawy manure to keep the ground moist and the crops clean. Sow the seeds thinly in single drills 3 feet apart, eventually thinning out the plants to a distance of 12 inches asunder.

Cropping Between the Rows.—Where close cropping is practised the spaces between the rows of Runner Beans ought always to be utilised during the early part of the season. Short-topped early maturing Potatoes may yet be planted, arranging for two or more rows in the 6 feet or wider widths, and one row between those to be topped. The Potato crops will be fit for lifting before the Beans shade the ground heavily. Lettuces, Turnips, or other quick-growing crops may also be grown between Runner Beans.

Ridge Cucumbers.—These succeed well in open positions with a slope to the south, always provided they are sheltered from cold winds in May and June, and a fair amount of sunshine reaches them. In cold sunless summers they do not pay for the trouble taken with them, not even if grown on heaps of decaying manure. For a few plants a ridge or bed of decaying manure, weeds, leaves, grass from the mowing machine, and the like may be formed in a sheltered corner in the frame ground, making this from 2 feet to 3 feet deep, and wide or square rather than narrow, narrow ridges being the first to become cold, and to suffer from drought. On these beds form mounds of good light loamy compost 3 feet apart each way. When the soil is warmed through either sow four or five seeds in each mound, or plant out from small pots, taking care to do this before the plants become starved and yellow in appearance. Shelter with either hand-lights, large bell-glasses, inverted flower pots, old handleless baskets, or other contrivances, and peg down the plants to prevent injury from the winds in the daytime. For culture on a large scale see Vegetable Marrows.

Vegetable Marrows.—These are indispensable. When we experience hot and dry summers Vegetable Marrows are not unfrequently the only green vegetable available in large quantities, and that, too, without any special efforts on the part of cultivators. In small gardens they are principally grown on beds or ridges of manure and soil, much as advised in the case of ridge Cucumbers; but when the market growers' plan is adopted much less haulm forms and far heavier crops are obtained. For an early supply these mild hotbeds and either frames or hand-lights are of good service in giving the plants a strong start, allowing the haulm to ramble naturally when it begins to get crowded. In addition to these a few or many plants may well be grown in the open garden. Select a sunny spot, sloping to the south or in a southerly direction, and mark out a width of 4 feet. Prepare by throwing out the best of the top spit of soil to a depth of 12 inches, next wheeling into the trench thus formed a solid foot of partially decayed manure, distributing the soil just thrown out over the sides and on the top of this. The heat in the manure coupled with sunshine will soon warm the soil through, and it is then ready for the reception of either seeds or plants raised in pots under glass. One plant to every 3 feet run of bed is enough, but two or three seeds should be sown at every site, leaving the strongest plant resulting and early removing the rest. Protect plants from cold winds and late frosts, much as advised in the case of ridge Cucumbers.

Weeds.—The long spell of cold, wet weather that has greatly checked the progress of most crops has not had a similar effect upon weeds, and they are in the ascendant accordingly. Advantage should be taken of fine, clear days to frequently hoe among all advancing crops, well stirring the surface, and at the same time destroying the weeds.

THE BEE-KEEPER.

SEASONABLE FLOWERS FOR BEES.

A FEW fine days and a higher temperature have had the desired effect in the apiary. Here all is life and bustle where a few days before only a solitary bee, more venturesome than the others, was to be seen on the wing. Now they are returning home in their thousands, heavily laden with pollen, and doubtless with a little honey; so eager are they to gain the entrance to their hive that many fail in the first attempt, the large pellets of pollen with which they are loaded appearing almost too heavy for them. If the weather is fine they invariably rise again. It is the sudden showers that are prevalent at this season that dash them to the ground, many of them never to rise again.

But from what source do the bees obtain a supply of pollen and honey in the early days of May? In many country districts the plants, shrubs, and trees that are fast bursting into bloom are so numerous that it would seem almost impossible to name them all; a few of the more prominent, however, may be mentioned for the benefit of bee keepers.

In this district (South Yorkshire) the Wild Cherry trees, which are very plentiful in the woods, have been a sheet of bloom for at least a fortnight, and are much appreciated by the bees. They have also the advantage of being ornamental in the landscape at any season. The sweet or cultivated Cherry is equally good for the bees. Pears and Plums are now a mass of bloom, and bee-keepers will not need reminding of the benefits derived from bees in fertilising the flowers.

Bees obtained little benefit from the Gooseberries owing to the dull cold weather that prevailed during the time they were in bloom. The Sycamore and several varieties of Maple are fast opening their flowers and will soon be a mass of bloom. These are much frequented by bees, the former yielding a great quantity of honey when the weather is favourable. In the garden the white Arabis alba has been a sheet of bloom for several weeks past. Bees never appear to tire of working on this variety, owing to the fact of there being but few other flowers at the season when it first opens. In sheltered positions Tulips, Aubrietias, and Wallflowers will yield a wealth of bloom, the latter being much sought after by the bees, as a plentiful supply of pollen is obtained, and also honey when the weather is favourable. The fields, hedgerows, and woods are carpeted with flowers, many of which are of great benefit to the bees. These are more plentiful than usual, owing probably to the spell of dry weather experienced last summer and the excessive rainfall since.

REMOVING SPARE COMBS.

If not already done it will be an advantage to remove all spare combs not covered by the bees. If the stocks are examined in the afternoon of a warm day it will at once be seen how many combs are required. By removing the outside frames and closing the division board up to those remaining in the hive the space will be contracted, and will be the means of maintaining a higher temperature in the hive than would otherwise be the case.

The spare combs can be returned to the stock as required. If the colony is a strong one an empty frame may be given every three or four days. Should a hive become crowded with bees and little honey is coming in, a frame of sealed-up brood may be taken out and given to a weak colony. Shake all the adult bees off; many young ones will adhere to the comb, which may be allowed to remain to strengthen the weak stock; being young they will not fight, and the weaker colony will accept them joyfully. This shows the advantage of having all frames the same size in an apiary.

SPREADING BROOD.

Is it advisable to spread brood with a view to strengthening a colony? is a question that is often asked. Personally, I may say I am not in favour of it, although I have often practised it in days gone by, for the simple reason that others did it, and as it was all the rage many years ago amongst advanced bee-keepers, or rather those who tried to improve on Nature. But what is spreading brood? someone may ask. It is this. When the weather is fairly warm in the spring, say the beginning of May, contract the hive, only leave in as many frames as are well covered by the bees. A

few days after, when the cells are all filled with eggs and brood, insert another frame of foundation, or, better still, fully drawn out worker comb, in the centre of the brood nest, repeating this as often as is necessary. The plan answers admirably if one could only rely on the weather being warm, but such is not the case for many days together in this country. If the days are bright there is often a frost at night, and the bees cluster in the centre of brood nest, with the consequence that the brood in the outside combs becomes chilled, and instead of the colony being strengthened it has quite the opposite effect. Spreading brood has done much harm to modern bee-keeping, and as it requires so much care and judgment I do not recommend its adoption.

I prefer the more rational system of placing the empty comb between the outside comb containing stores and the next one which the queen has filled with eggs and brood. Do this as often as necessary, and there will be no fear of having chilled brood and its attending evils. When empty frames are being given to stocks, if honey is not coming in freely it will be an advantage to uncap some of the sealed up stores, this will encourage the queen to continue laying.—AN ENGLISH BEE-KEEPER.



* * All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," 8, Rose Hill Road, Wandsworth, London, S.W. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

Educational (J. H. D.).—If the evidence in our possession is not misleading, and we do not think it is, the Institution in question is at present without the requisite means for meeting your anticipations, and you will probably act wisely by waiting the issue of events, which may possibly be of a favourable character.

Insects in American Wonder Peas (Wonder).—The insects in the Peas are the Pea-seed beetle (*Bruchus pisi*), which by its grubs feeding in the Peas lessens their weight and value for seed, as where the substance of the Peas is much eaten away the growing power of the young plant from the damaged seed is also much lessened. Peas infested by the beetle are easily distinguished by having a little round depression in the skin, which is slightly yellowish or transparent, and caused by the substance of the Pea having been eaten away inside by the grub. It is hardly necessary to say that infested seed is not desirable for sowing, as the growth of this depends on the stored matter in the seed, and the first growth not being vigorous the later will be correspondingly stunted or sickly; but by treating both Beans and Peas before sowing with petroleum we have obtained satisfactory results. The Peas were placed in a flower pot with the hole corked and petroleum sprinkled on them, then by moving the Peas up and down by a throw-up and turn-over movement, effected by holding the flower pot by the rim with both hands, the seed was thoroughly moistened with the petroleum, and after draining off the superfluous oil the Peas sown. The petroleum sinks through the thin skin of the seed, where the beetle lies in the channel beneath. As to the beetles in the infested Peas being "likely to leave any progeny to develop this season," it is certain that the beetles would not be injured by being buried in the soil, for they require a certain amount of moisture, otherwise they die even in the seed. The beetles can be deterred from depositing their eggs on the embryonic pods by spraying the plants when showing blossom with a solution of soluble petroleum, which has also the advantage of preventing attacks of mildew and other pests. It should be applied in a dry time, or if wet repeating occasionally.

Overtime (Primrose).—You have evidently laboured diligently and done your best to write poetry on this prosaic subject, and succeeded in failing. In making engagements it is desirable to have a clear understanding on the subject of compensation for extra hours of labour, for the avoidance of subsequent disappointment.

Vine Leaves (J. D.).—It is quite common for parcels to be delivered some hours later in London than are letters posted at the same time. Your letter has been received, but not the parcel, though it perhaps might have been if you had addressed it as has been advised in our columns during the past three weeks. See instructions at the head of this page.

Cherry Tree Blossom Falling Off (J. M. H.).—The tiny grubs eating the embryo fruit are the larvæ or caterpillars of the winter moth (*Cheimatobia brumata*). There are also swarms of thrips, both larvæ, white or yellowish, and perfect forms, black—Thrips minutissima or vulgatissima. The surest means of destroying the caterpillar is to spray the trees with a mixture of Paris green, using the paste form, 1 oz. to 20 gallons of water, whilst the foliage is very young and tender also the caterpillars very small. The mixture must be applied by a spraying apparatus, such as the knapsack pump advertised in our columns, merely wetting the trees with the finest possible film of the mixture, and repeating at intervals of about four days or once a week for a time. If the caterpillars gain on the trees use it stronger, 1 oz. to 15 gallons of water, as the foliage will bear more and the caterpillars take more killing as the first gets firmer and the latter stronger. If you add 1½ oz. of softsoap to each gallon of the spraying mixture it will also kill the thrips. Killmright and other advertised insecticides act well against both caterpillars and thrips.

Diseased Vine Roots and Leaves (S. H., I. W.).—1, The malformed leaves from the Black Hamburgh Vines are crumpled in the middle next the footstalk, and appear to have had moisture resting there when the sun has acted powerfully upon them or air admitted so as to evaporate it rapidly; but there is no rust or scorching such as generally results therefrom, and no gnawing of the leaf surface such as occurs by infestation from Vine moth caterpillar. There also was no web, so we cannot make out anything but the moisture on the leaves as the likely cause. 2, The roots of the Black Alicante Vines are a similar enigma, for there are no fungus or micro-organism of any kind; but they are simply dead, and the loss of the roots is probably the cause of the shoots becoming black at the tips. It is a case similar to "browning," but more decisive. There was no fungoid or other diseases so far as we could discover, and we consider the defective nature of the roots sufficient to account for the disease, which is not of an organic nature, but due to root destruction occasioned by sourness of the soil. Perhaps a dressing of best chalk lime, air slaked, would correct the sourness of the soil; at any rate it would not do any harm, and you may use it at the rate of 1½ cwt. per rod (30½ square yards) without any detriment, pointing in as deeply as can be done without injuring the roots. If these are near the surface let the lime remain on the top, and if you do not mind the appearance, a quarter of an inch thick of lime would not do any harm left on the border, and out of this sufficient in soluble form would pass into the soil to rectify its sourness, while it would the sooner become carbonated or revert to carbonate of lime.

Double Scarlet "Geraniums" for Market (W. B.).—You will find F. V. Raspail the most profitable, this variety flowering continuously all through the winter. Turtle's Surprise is good as a small pot plant for the markets, but it is not nearly so robust as the popular "Raspail." Strong young plants in 8-inch pots produce the finest trusses. Old stock plants, favoured by some of the growers in the London districts, flower more profusely, but the trusses are small, requiring more to make a saleable bunch. No gumming is needed. White-flowering varieties should also be tried. Hermine and Madame Rozain can be recommended; these, if not quite so floriferous as Raspails, yet pay well, especially where there is a local demand for white flowers. Sixpence per dozen trusses wholesale is a fair price for the scarlets, but the whites, if good, frequently fetch ninepence. Not later than March insert firm cuttings (young tops) either singly in thumb pots, or three or four round the sides of 4-inch pots. They will root readily in a brisk dry heat. When well rooted place the plants singly in 4-inch pots, and arrange them on staging not far from the glass in gentle heat. They may be topped either shortly before or soon after potting, and should be kept cleared of flower buds. Light frames are the best for them in May, and before they come root-bound the final shift should be given. The strongest and best plants may have 8-inch, and the rest 6-inch or 7-inch pots. Drain carefully and pot firmly, using a compost of two parts fibrous or good yellow loam to one of leaf soil, with a sprinkling of bonemeal and sand added. If frame room is limited arrange the plants in a sunny open position on a bed of ashes, but they are less liable to suffer from over-watering when kept a few days longer under glass. During the summer top often enough to form well balanced heads, also pinch off all flower trusses that form. Avoid undue crowding, and turn the plants round occasionally to prevent their rooting into the ashes. House before they are injured by cold wet weather. Arrange in light structures, raising them well up to the glass, either on temporary trellising or inverted flower pots. They require a dry heat, from 50° to 55° by night, with a slight increase on sunny days. In stronger heat and a moist atmosphere they grow too strongly and do not flower freely. Weak liquid manure may be given with advantage when the plants show signs of requiring it. The season lasts from October till Whitsuntide, after which bushy plants will frequently realise 9d. each for lawn and vase decoration.

Destroying Vegetation in Water Tanks (Telmah).—Chloride of lime would be likely to answer your purpose, adding 1 oz. to each gallon of the liquid in the tanks that may not be cleaned out. Crude carbolic acid, 1 oz. to a gallon of the liquid would serve the same object, or carbolic acid, No. 5 quality, one part to ninety-six parts = 1 gill (quarter pint) carbolic acid to 3 gallons of the liquid. We do not know of anything better, and though you say, "It does not matter about using a poison," we may direct attention to the poisonous nature of the substances named, and the danger of the water if partaken of by useful animals; while injury might follow the regular use of such water for watering plants. If there be any danger in using the poison the only course that can be safely followed is cleaning out the tanks.

Root of Lamb Mint Diseased (Mater).—The root is infested by the Mint smother fungus, *Helotium scutula*, or to be exact the form of it known as *H. s. menthae*. The procedure we should advise as the best means of getting rid of the fungus, is to break up the old beds, dry the stubble and roots, and burning them similar to couch grass. The fresh beds should be made in the early spring, when the young shoots are a few inches high, placing them in rows about 9 inches apart, and leaving out every sixth row so as to form beds. It is advisable to make fresh beds about every third year, or make new ones every year; and after the old beds have been hard cut for a time dig them, thus there will be a full supply of Mint, and the beds not more than three years old. You may sprinkle a little air-slaked lime on the infested bed, and this will destroy the fungus. About a peck of lime is sufficient for a rod of ground (30½ square yards).

Cut Flowers for Profit (A Beginner).—Not much can be done with one small greenhouse, though it ought to be found of considerable assistance in raising plants for growing in the "large garden." Much depends upon whether you expect to find a good local sale or not. Locally a greater variety will frequently sell readily than can be sent profitably to the markets. For the greenhouse prepare as many Chrysanthemums in pots as you can find room for, and as white flowers are most in demand let the selections of these, and other plants grown, consist principally of white. When the Chrysanthemums are over introduce Tea Roses in pots, and with these may be associated Hyacinths, Tulips, Narcissi, Spræas, and Gladioli. Tomatoes will be found the best summer crop. In the garden grow *Doronicums*, *Coreopsis lanceolata*, *Campanula persicifolia flore-pleno*, *Gypsophila paniculata*, *Ranunculus aconitifolius plenus*, *Rudbeckia Newmanni*, *Lilium candidum*, herbaceous Su flowers, *Anemone japonica alba*, *Pyrethrum niginosum*, dwarf *Pyrethrums*, early flowering Chrysanthemums, Roses, Carnations, Pinks, Mignonette, Violets, Wallflowers, Sweet Peas, Asters, Stocks, Zinnias, red, white, and yellow Cactus Dahlias, and white Antirrhinums. A few more kinds could be named as being suitable for your purpose, but we have given you enough to start with.

Ornithogalum Diseased (Gomersis).—The "shaw" or "grass" of the *Ornithogalum* bulbs is quite black, but on neither the bulbs nor the blades on the soil is there an affection of any kind. The epidermis of the leaves is ruptured more or less down to the soil, and bear fruits of the fungus, causing the black appearance of the "shaw." The parasite is the *Ornithogalum* black mould fungus, *Heterosporium ornithogali*, *Klotzsch* (syn. *Helminthosporium exasperatum Berk. and Br.*). The best preventive and remedy is spraying or sprinkling with a solution of permanganate of potash, 1 oz. to a gallon of soft water, or Condy's fluid diluted to a rose-coloured solution is simple and safe. A large tablespoonful to a quart of water suffices, and either the green or red fluid may be used. This will destroy the basal aggregation of hyphal cells, which is very important. It would be an excellent plan to transplant the bulbs into entirely fresh ground, as they seem much overcrowded, affording light yet good soil, with ample drainage. We should, however, treat the plants and place where they are growing with permanganate of potash solution as before advised. This cannot bring back health to the present leaves, as the disease is too deep rooted, but will do good.

Blistered Louise Bonne of Jersey Pear Fruit, Shoots, and Leaves (S. K.).—The young fruit and shoots, with the leaves, are affected by the Pear-leaf blister fungus, *Ascomyces bullatus, Berk.*, and also by the Pear-leaf gall mite, *Phytoptus pyri*, the latter being the more decisive. The fungus is accountable for the dying back of the young shoots, its mycelium being perennial in the wood, and in the spring spreads through the intercellular spaces of the tissues of the young shoots of infested plants. The tufts are at first small and isolated, but soon run into each other, and covered at first by the epidermis, which is raised in blisters, bright red in colour, with here and there prostrate hyphae appearing on the surface, once called *Actinonema crategi* or *Oidium bullatum*. The disease is spread by spores. These have not yet appeared; therefore, to act against both the fungus and mites, the tree may be sprayed or syringed, preferably the former, with a solution of soluble petroleum made as follows:—Dissolve 5 ozs. softsoap in a quart of water by boiling, and when dissolved remove from the fire for safety; then add a wineglassful of petroleum, stirring briskly till amalgamated, when dilute to 2½ to 3 gallons by adding sufficient hot water, and then cooled to 90° to 100° apply with a spraying apparatus or syringe, wetting the tree thoroughly on a calm afternoon after the sun is off. This may be repeated once or twice at intervals of about ten days. To reach the mites it is necessary to wet the under side of the leaves. If the young growths are affected by the mites about midsummer repeat the syringing at the early part of July. Another season spray or syringe the trees with soluble petroleum solution when the buds commence swelling, but before they burst, and it is likely you will not be troubled with the mites or even the fungus if you cut away the parts affected and burn them.

May-flowering Tulips (Mrs. H. F. F.).—Your beautiful yellow Tulip is *retroflexa*, of which bulbs should be ordered in September and planted when they are received. A charming companion to it is the variety called *Picotee*, while for richness in beds and borders *macrospila* cannot be easily surpassed. For colours see notes on Tulips, page 412.

Fuchsia Leaves Failing (G. B.).—The cause of the evil is mismanagement. By the pressing down of the soil after the roots had taken possession of it these may have been injured, and besides, the soil has been kept much too wet and sodden. Exercise more judgment in watering, keep the plant in a shady place for a week or more, sprinkle it occasionally, and maintain a rather damp atmosphere. So long as the soil feels pasty when rubbed give no water, but when it crumbles when pressed afford a supply.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, at being often difficult to separate them when the paper is damp. (*E. E. C.*).—1, *Berberis Darwini*; 2, *B. stenophylla*. (*H. M. B.*).—1, *Tulipa sylvestris*; 2, *Doronicum plantagineum*, var.; 3, Dutch Tulip, *La Candeur*; 4, dead. (*S. G. T.*).—1, *Adiantum cuneatum*; 2, *A. gracilimum*; 3, *A. grandiceps*; 4, *Pteris tremula*; 5, specimen insufficient, send fertile frond; 6, *Pteris serrulata*. (*A. S. H.*).—1, *Cypripedium Lawrenceanum*; 2, *Lycaste Skinneri*; 3, a *Dendrobium*, but the specimen was too withered for specific identification. (*L. W. E.*).—1, *Prunus nana*; 2, *Magnolia Soulangeana*; 3, dead. (*G. P.*).—Your *nom de plume* is a word puzzle, and we give it up. If you read the above instructions you will perceive that flowering specimens are necessary for purposes of identification. 1, *Prunus padus*; 5, *Saxifraga muscosa*; 6, *Ribes aureum*; 2 appears to be a *Tiarella*, and 3 a *Heuchera*.

COVENT GARDEN MARKET.—MAY 12TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½ sieve	0	0	to	0	Lemons, case	11	0	to	14
Filberts and Coobs, per 100lb.	0	0		0	Plums, ½ sieve	0	0		0
Grapes, per lb.	2	0		3	St. Michael Pines, each ..	3	0		8

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Asparagus, per 100	0	0	to	0	Mustard and Oress, punnet	0	2	to	0
Beans, ½ sieve	0	0		0	Onions, bushel	3	6		4
Beet, Red, dozen	1	0		0	Parsley, dozen bunches ..	2	0		2
Carrots, bunch	0	3		0	Parsnips, dozen	1	0		0
Cauliflowers, dozen	2	0		3	Potatoes, per cwt.	2	0		4
Celery bundle	1	0		0	Salsafy, bundle	1	0		1
Coleworts, dozen bunches	2	0		4	Seakale, per basket	1	6		1
Cucumbers	0	4		0	Scorzonera, bundle	1	6		0
Endive, dozen	1	3		1	Shallots, per lb.	0	3		0
Herbs, bunch	0	3		0	Spinach pad	0	0		4
Leeks, bunch	0	2		0	Sprouts, half sieve	1	6		1
Lettuce, dozen	1	3		0	Tomatoes, per lb.	0	4		0
Mushrooms, per lb.	0	6		0	Turnips, bunch	0	3		0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (various) doz.	6	0	to	36	Foliage plants, var. each	1	0	to	5
Arum Lilies, per dozen ..	8	0		12	Fuchsias, per dozen	6	0		9
Aspidistra, dozen	18	0		36	Genista, per dozen	6	0		10
Aspidistra, specimen plant	5	0		10	Hydrangeas, per dozen ..	9	0		12
Azalea, per dozen	18	0		36	Lilium Harrisii, per dozen	12	0		18
Calceolarias, per dozen ..	4	0		8	Lobelias, per dozen	4	0		6
Cinerarias, per dozen ..	6	0		9	Lycopodiums, dozen	3	0		6
Dracæna, various, dozen ..	12	0		30	Marguerite Daisy, per				
Dracæna viridis, dozen ..	9	0		18	dozen	6	0		9
Erica, (various) per dozen	9	0		18	Mignonette, per dozen ..	4	0		6
Euonymus, var., dozen ..	6	0		18	Myrtles, dozen	6	0		9
Evergreens, in variety, per					Palms, in var., each	1	0		15
dozen	4	0		18	" (specimens)	21	0		63
Ferns in variety, dozen ..	4	0		18	Pelargoniums, per dozen ..	9	0		15
Ferns (small) per hundred	5	0		8	" Scarlet, per doz. ..	4	0		8
Ficus elastica, each	1	0		7	Spiræa, per dozen	6	0		9

Bedding plants and roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Anemones, dozen bunches..	1	6	to	8	Maidenhair Fern, per dozen				
Arum Lilies, 12 blooms ..	2	0		4	bunches	4	0	to	8
Asparagus Fern, per bnob.	2	0		3	Mignonette, dozen bunches	3	0		6
Azalea, per dozen sprays ..	0	6		0	Narcissi, (various), dozen				
Bluebells, dozen bunches	1	0		1	bunches	1	3		2
Bouvardias, bunch	0	6		0	Orchids, var. doz. blooms	1	6		12
Carnations, 12 blooms ..	1	0		3	Pæony (French), per bunch	0	6		0
Eucharis, dozen	3	0		4	Pelargoniums, 12 bunches	4	0		8
Gardenias, dozen	2	0		4	Polyanthus, dozen bunches	1	0		2
Geranium, scarlet, doz.					Pyrethrum, dozen bunches	1	6		3
bunches	4	0		6	Roses (indoor), dozen ..	0	9		1
Iris (various), doz. bunches	6	0		12	" Tea, white, dozen ..	1	0		2
Lilac (English), per bunch	0	6		1	" Yellow, dozen (Niels)	1	6		4
Lilac, White (French), per					" Red, dozen blooms ..	1	6		4
bunch	3	6		4	" Safranc (English), doz.	1	0		2
Lilium longiflorum, 12					" Pink, per dozen	4	0		6
blooms	2	0		4	Smilax, per bunch	5	0		7
Lily of the Valley (French),					Tuberose, 12 blooms ..	1	0		1
per bunch	1	0		1	Tulips, dozen bunches ..	2	0		6
Lily of the Valley, 12 sprays,					Violet Parme, per bunch ..	3	0		4
per bunch	0	6		1	" per doz. bunches ..	1	0		1
Marguerites, 12 bunches ..	2	0		3	Wallflowers, dozen bunches	1	6		4



KETLOCKS.

YES, you may look in your dictionaries; it may be in some, but certainly is not in all, and the south country man will probably puzzle himself in vain. Well, for the benefit of all we will give other and possibly more familiar names.

Charlock or Cherlock, and Wild Mustard. It is a weed belonging to the cruciferous tribe, and its botanical name is *Sinapis arvensis*. It is an annual, with leaves toothed, and rough pods of many angles—rugged, longer than the awl-shaped beak; the seed is round and black, and being of an oily nature may lie for years in the soil unsuspected, and then, under favourable conditions, break forth into life.

That the Charlock is a true pest to both corn grower and root cultivator is a fact that admits of no doubt. The burning question is, how to get rid of it permanently. The seed being, as we before said, of an oily nature, it can remain buried in the ground for a great length of time without taking any harm. An extra deep ploughing may bring up to the surface thousands of seeds, which only need favourable conditions to spring into growth. Hardy as Ketlock is, it cannot stand frost, so that we seldom see it in winter-sown corn.

When Ketlock appears among the Turnip and Swede rows a timely hoeing prevents further mischief; it feeds and grows on the superphosphates, and in a dry time unless carefully watched will overpower the weaker growths of the roots. Like many other seeds Ketlock germinates most freely where the ground is well tilled, hence we see it so often abundantly in the beautifully prepared Barley lands. If it were always possible to get the Ketlock crop off first before sowing Barley all might be well, but as it is a matter of such vast importance to get Barley in early if you mean a really good crop precious time and opportunity cannot be wasted. Even should a crop of Ketlock be taken first you have no guarantee that there may not yet be more seeds that will still germinate. In a dry season, too, the less the land is worked after being thoroughly prepared the better. Every working means loss of moisture, and loss of moisture means slow growth, or perhaps no growth at all.

There are other means by which a field that is impregnated with this pest may be got clean. If the plant be removed before seeding the root of the matter is reached (we do not intend a pun). A fodder crop which is mown or eaten early will give the Ketlock plant no chance to propagate itself, nor will it have much chance among Potato tops or in well-weeded Swedes or Turnips. Of course it throws things out of gear on the farm to alter the rotation of crops, but nowadays we are more ready to diverge from the beaten paths than were our forefathers.

What is to be done, however, when these wretched weeds spring up in battalions among new sown corn? If seeds (Clover or Sainfoin) are not already sown the harrow is the only course open. Should seeds have been sown the harrow is out of the question. A suggestion has been made that in a case where the corn was badly infested with Ketlock to let both grow together till the latter was in flower, then mow and make hay. There would be a good mow, at any rate, and sheep relish Ketlock. The weed would be put beyond any chance of seeding.

Sheep, too, might be pastured on the weed-infested Barley, and should seeds have been sown in all probability the eating of the Barley would make the Clover plant come stronger. In any case folding with sheep would make a good preparation for an early sown Wheat plant in the autumn.

The old fashioned idea of boys and women pulling the obnoxious weed seems quite out of date. This possibly for several reasons—

firstly the expense, secondly the difficulty of finding the women and boys. In most country districts it is very rarely that you see a woman engaged in agricultural work. In Holderness they used to do most of the Wheat hoeing. Now, unless it is among Potatoes, they are conspicuous by their absence. As for the children, well, this higher education is at the root of their absence. They are learning something useful in the schools, but they are missing much that would be useful to them in after life, and the farmer in vain looks for some implement that would be equally efficacious as the little lads were when they went "ketlocking."

WORK ON THE HOME FARM.

There is little to chronicle this week that is of special interest. We have had a cold dry week, and vegetation has made small progress. The later sown Barley has come up quickly, and looks very well indeed, much better than that put in very early, which has had a sharp check. The forward Wheats, too, are yellow, and being overtaken by the later sown plots.

Many people have not got their Mangold in yet, and this crop may be reckoned as being fully a fortnight later than usual. When delay in sowing is unavoidable, it is better to have the seed well steeped before drilling; we have sown Mangold seed with very visible sprouts, and never had a better plant than on that occasion.

Carrots at £4 per ton are encouraging to the grower, and in Carrot districts the drill is hard at work. Eight lbs. per acre are drilled about 20 inches wide. Intermediate and Stump-rooted are the varieties most in favour.

Our first foal has safely arrived after a few nights anxious watching. An unfal mare should be seen every half-hour as foaling draws near, a few minutes longer may easily mean the loss of a valuable foal.

The cattle are all out and looking well, but there is little grass visible; unless we have some warm weather shortly there must be a scarcity of keep. Seeds are very bare; they are too thinly planted to carry much stock.

Fallows are ready for Turnips as regards cleanliness, but not as regards tilth; many fields are decidedly rough. The dry weather is drying the clods, and only a good steeping rain is required to produce a good seed bed.

Potatoes which have not been ridge-harrowed should be attended to at once, as the young sprouts will soon appear and are easily broken off. If there is danger of this the middle teeth of the harrow are better removed temporarily. It is good policy to get the Potatoes cleaned as early as possible. Much harm may be done, particularly to early sorts, by disturbing the young roots after tubers have begun to form.

This promises to be a great year for Thistles, perhaps the result of a wet autumn and consequent absence of autumn dressings; but this does not apply to the Wheat crop, which is now much in need of weeding. Hoeing has gone out of fashion, but should be practised this year, Wheat being thin on the ground and as a consequence very much threatened with weed competition.

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ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, The Royal Gardeners' Orphan Fund, Chiswick, W.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1897.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.		
May.		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday	2	29.896	51.4	45.3	W.	48.9	62.0	39.3	103.6	34.0	0.030
Monday	3	29.892	55.1	50.2	N.W.	50.3	60.6	44.1	108.7	42.6	—
Tuesday	4	30.206	49.6	42.7	N.W.	50.0	60.6	37.4	105.4	32.1	0.124
Wednesday ..	5	29.932	50.9	49.7	W.	51.0	59.2	45.7	104.8	41.2	0.008
Thursday ..	6	30.079	47.8	41.3	N.W.	49.2	56.1	35.9	106.1	31.2	—
Friday	7	30.120	52.8	45.3	N.W.	48.8	58.1	34.7	98.9	32.1	—
Saturday ...	8	30.132	53.9	50.9	S.W.	49.9	65.8	47.1	106.7	41.6	—
		30.037	51.6	46.5		49.7	60.3	41.7	104.6	38.4	0.160

2nd.—Sunny almost throughout.

3rd.—Rain between 5 and 6 A.M.; alternate cloud and sunshine during day.

4th.—Bright sunshine almost throughout

5th.—Rain from 4 A.M. to 8 A.M., and showery morning; some sun at midday, but spots of rain later.

6th.—Bright early; overcast morning; generally sunny in afternoon.

7th.—Bright early, and occasional sun in morning, but generally cloudy.

8th.—Occasional sunshine in the middle of the day, but generally overcast.

The temperature continues remarkably close to the average, but the air has been much drier than in the previous week.—G. J. SYMONS.

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- 12 Very fine Single unnamed kinds, 12/-; 6, 8/6.
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- 12 Fine mixed Double and Single for Bedding, 3/-; 50, 10/-; 100, 18/-.
- 12 Grandest Double kinds, 28/-; 6, 14/-.
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- 12 Very fine Double Zonals, 4/-; 6, 2/6.
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- 12 Grand kinds, 4/-; 6, 2/6.

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Journal of Horticulture.

THURSDAY, MAY 20, 1897.

FOOD REQUIREMENTS OF TOMATOES.

THE growing of Tomato plants to produce fruit for market has during the past few years developed into a very important industry. To some growers the culture of these plants is quite an easy matter, for they seem to be able to grow good plants, free from disease, which produce abundance of fruit without any particular attention, while others, paying every attention to cultural details, cannot grow satisfactory crops. It may be that the soil and surroundings are more suitable in the former case; be that as it may, the facts remain the same.

In the following notes I do not propose to give cultural directions as to soil, watering, and tying, for they have already been fully dealt with in the *Journal of Horticulture* since the commencement of the present year, but wish rather to state the food requirements of the Tomato plant, and show how and in what form these may be applied.

In trying to determine what constituents the Tomato plant and its fruit require from the soil we must first of all know of what they consist. A fully developed Tomato plant—i.e., leaves and stem, when about 4 feet in height, will weigh 3 lbs. The root system to such a plant when free from soil will weigh 4 ozs., and such a plant on an average would produce 3 lbs. of fruit. This gives us a basis to work upon, and, together with a careful consideration of the analysis of the Tomato plant, its roots and fruit, will teach us what ingredients are required. The following analysis shows the most important constituents found in the fresh Tomato plant, its roots and fruit:—

TOMATO ANALYSIS.

SELECTED CONSTITUENTS IN	PLANTS	ROOTS	FRUIT
Nitrogen	0.32	0.24	0.16
Potash	0.45	0.34	0.25
Phosphoric acid	0.69	0.01	0.15
Lime	0.30	0.54	0.09

The above tables are very interesting, and much may be learnt from them valuable to cultivators. A careful study of them shows that the fresh plant contains about the same amount of nitrogen and lime, half as much again of potash, and more than twice as much phosphoric acid.

Passing from the plant to its roots, we find they contain more potash than nitrogen, scarcely any phosphoric acid, but a very large amount of lime.

The fruit of the Tomato only contains about half as much nitrogen and potash as the plant, less than a quarter as much phosphoric acid, and scarcely any lime.

What does this teach us? First of all that there must be an abundant supply of phosphoric acid and potash, and a fair proportion of nitrogen and lime, during the development of the plants; secondly, that the roots require a fair proportion of nitrogen and potash, and a large quantity of lime; and thirdly, that nitrogen, potash, and phosphoric acid are required in fair proportions for the development of the fruit.

Let us carry our inquiry a little farther, and see how much of these selected constituents a plant requires. The quantity of food needed by an individual plant is very small, and the weight of the different ingredients would have to be described in grains; we will, therefore, take 100 plants, this being a better number for the purpose of illustration.

One hundred Tomato plants, when 4 feet in height, would weigh about 300 lbs., the roots 400 ozs., and the fruit 300 lbs., and would contain, according to the above analysis, as follows:—

PLANTS—15½ ozs. of nitrogen, 1 lb. 6 ozs. of potash, 2 lbs. of phosphoric acid, and 15 ozs. of lime.

ROOTS—1 oz. of nitrogen, 1½ oz. of potash, traces of phosphoric acid, and 2¼ ozs. of lime.

FRUIT—8 ozs. of nitrogen, 12 ozs. of potash, 8 ozs. of phosphoric acid, and 4 ozs. of lime.

One hundred Tomato plants with their roots and fruit would, therefore, contain:—1 lb. 9 ozs. of nitrogen, equal to 11 lbs. of nitrate of soda; 1 lb. 9 ozs. of potash, equal to 13 lbs. of kainit; 2½ lbs. of phosphoric acid, equal to 18 lbs. of superphosphate of lime; and 1 lb. 5¼ ozs. of lime.

A manure to be of any value for Tomatoes must therefore contain nitrogen, potash, phosphoric acid, and lime. After carrying out dozens of experiments on Tomatoes with different artificial manures, I have come to the conclusion that a mixture of half a part or pound of nitrate of soda, half a part of dried blood, one and a quarter part of kainit, and two parts of superphosphate of lime, will, as a general rule, give the best results of any artificial fertiliser on a sandy soil or sandy loam.

The following mixture has also given good results—Half a part or pound of sulphate of ammonia, half a part of Peruvian guano, half a part of muriate or sulphate of potash, and one and half part of superphosphate of lime. The above mixtures should be applied to plants fruiting in pots at the rate of 1 oz., or a teaspoonful, in a gallon of water twice a week after the first fruit is set. For plants in borders apply 2 ozs. to the square yard once a week.—W. DYKE.

OUR HARDY PLANT BORDER.

(Continued from page 334.)

GODETIAS.

PROBABLY it will have been observed in the preceding notes that we have included few annuals amongst the plants raised for our border. This omission is chiefly due to the fact that the situation and soil are too cold and wet for the majority of those that are usually raised in autumn to flower the following season, while the spring is so late and uncertain that early raising out of doors cannot be depended upon. Still we have succeeded with some, and because the hints may be useful to those similarly situated, a few of the most reliable are here noted. First in order as regards effectiveness in masses must be placed the Godetias, of which two varieties have proved extremely useful summer flowering plants.

Several of the best of the Evening Primroses, the *Oenotheras*, are grown, and the Godetias are near relatives of these, differing, however, in two characters, which are well marked popular distinctions—namely, the absence of the yellow colour, which is general in the *Oenotheras*, and in the opening of their flowers not being so much controlled by the sunlight as to come under the heading

“evening” flowers. Still, they are influenced by very bright weather to some extent, for the flowers do not open so freely as on slightly duller days, but they expand well if cut and placed in water in a room, and they last well, too, under such conditions, much better than many annuals do when similarly treated.

Ordinary well-dug and fertile soil suits Godetias well, but they do not require a quantity of rank manure; indeed, if nothing is available but fresh stable or farmyard manure they are better without such additions altogether. In my experience this applies to many other annual plants that are cultivated for their flowers, and except where the soil is very light and deficient in humus, or it can be prepared some time in advance of the sowing or planting, I have found nothing so safe and satisfactory as a light dressing of superphosphate of lime with potash derived from burnt rubbish and clearings, or kainit. As previously noted in several letters, 1 oz. to the square yard of superphosphate or kainit, and about half the quantity of nitrate of soda or sulphate of ammonia are sufficient, but the two latter stimulants are seldom needed for the smaller-growing annuals.

Godetia seed can be sown out of doors, or in a frame or greenhouse, as it germinates readily without artificial heat, and if sturdy well hardened seedlings are ready for planting out in April and early May they develop into good flowering specimens. If sown in the open border the seeds must be scattered so that the plants have sufficient space, or early thinning should be resorted to. As with many other plants self-sown seedlings produce the strongest plants provided the soil is not allowed to become exhausted, and I have beds that have been retained in this way for several seasons. The only attention they have needed has been a light dressing of roadside scrapings with a dusting of superphosphate annually, either after cutting away the old plants or in early spring; and thinning the seedlings where too crowded. Masses 6 feet in diameter have an excellent effect, especially if the light and dark colours are contrasted, that is, in separate but neighbouring beds, as when mixed they do not look so well except in small borders.

Two varieties are far in advance of all the others for growing in the way indicated, and these are Lady Albemarle, rich bright crimson, with a beautiful satin-like gloss on the petals, and Duchess of Albany, pure white—a particularly handsome plant. Both have large flowers, produced in profusion, and the habit is compact yet vigorous, branching freely, and reaching the height of about a foot. But dwarfier selections from these are now offered by seedsmen, and for some purposes they are preferable to the others, but if a good strain of seed is obtained the ordinary types are the best for large beds. Charming varieties of less distinctly marked characters have received names, such as Satin Rose, which is one of the best known, Bridesmaid, Ladybird, Apple Blossom, and Duchess of Fife, all possess bright and beautiful flowers, or in a good mixed strain many similar variations will be found. Though not possessing the range of colour seen in some popular favourites yet the Godetias have much to recommend them to notice, and it is rather surprising that they are not more generally grown.

SWEET PEAS.

Lathyrus odoratus has received keen attention from seedsmen and others interested in their improvement, and the result within quite recent years is, to say the least, astonishing. Perhaps there is not another annual flowering plant in general cultivation at the present time which has so much to recommend it as the graceful *Lathyrus*, familiarly known as the Sweet Pea. In colours alone there is a most unusual range, for not only are there pure white and a near approach to black in the darkest of purple shades, but we have pure blue in many tints, rose, crimson, and scarlet, with intermediate shades innumerable, while a distinct shade of yellow has also been secured. Scores of varieties have received distinctive titles, and many have been honoured with certificates by the Royal Horticultural Society's Floral Committee, the members of which seem to have a very excusable weakness for these delightful plants; yet I have found that a good mixed strain from any well-known seed firm will give all the variations that can be desired. The grower then has the privilege of naming the seedlings himself if he wishes them named, but they do not appear any more beautiful or useful because they are labelled “Messrs. Somebody's Extra Special Gigantic Rainbow Sweet Peas.”

We are grateful to the seedsmen for the excellent work they have done in improving so many of our garden flowers, but we do not always appreciate the multiplication of names. This, however, is only a personal fancy, and if anyone has an inclination for a collection of plants representing the nobility and the celebrities of the present times, they can easily satisfy themselves with the Sweet Peas, for they have been honoured with names from Her Majesty downwards, including a liberal allowance of princesses and duchesses.

Apart from all other considerations, however, Sweet Peas are

amongst the most useful annuals that can be grown wherever flowers for cutting are in demand. They last well when cut, are produced over a good portion of the summer months, can be used for vases, bouquets, or bunches, and their fragrance is of that delicate and agreeable nature that does not overpower or satiate.

Sweet Peas prefer a moderately light, rich soil, but no better aid can be afforded them than superphosphate, in small dressings. If the seeds are sown in the autumn in favourable situations strong plants will be making progress at the present time; but seeds can be sown out of doors now, and in some cases with much better results, at least for the bulk of our plants we rely upon sowing in April and early May. If grown simply for cutting purposes a few rows may be sown like garden Peas and duly staked, but they are seen to much better advantage if they can be allowed to trail over old tree stems or roots, up trellises or round summer houses. The habit of the plant is naturally so graceful that it seems almost deplorable to see it confined to rigid limits or formal stakes.—A COUNTRYMAN.

ANCIENT AND MODERN CUCUMBER CULTURE.

It is a far cry to 1837, a date upon which for so many reasons our thoughts are now often directed, but in ordinary garden practice there are few things in which more change in cultural methods has been effected than in growing Cucumbers under glass. Even half a century since Cucumbers were almost exclusively grown in frames or pits on masses of fermenting manure, and in such soil areas as would make present-day growers marvel how the plants became productive.

The labour involved in the preparation of the manure, getting enough to either constitute a good-sized hotbed or to fill pits and supply effective linings, was great, and added to all this labour was that of having, especially early in the season, to keep up thick linings, so that the heat generated in the original beds might be both conserved and assisted as long as possible. It still remains in lively remembrance the difficulty of maintaining the desired warmth, and the disastrous suddenness with which it would collapse under cold, heavy rain or snowstorms, or sudden and severe falls in the temperature.

Then the big heaps of soil put into the frames or pits, usually at the first a good wheel-barrowful to a mound for each pair of plants, and as the roots showed themselves on the surface other two barrowfuls, or perhaps more of soil was added, until the plants had enough of root area for a dozen, while beneath the soil was a mass of rich manure, into which the roots running soon bred gumming, yellows, disease, and death. What wonder if the growth in stem and leafage was excessively luxuriant, rendering severe thinning absolutely essential, and making the production of fruit difficult. Still farther, the varieties then grown were, if long, rather coarse in appearance and poor setters; or if free setters then were short, and of no appreciable market value. Altogether, having regard to conditions under which grown and the great amount of attention constantly needed, Cucumber culture, whilst severely testing a grower's capacity, was far from being pleasant or profitable employment.

How different are things now. We must not forget, however, that for the change, apart from better knowledge, we owe an immense deal to the removal of the tax on glass, once so oppressive, and to the introduction of heating by hot water; still the very best, and indeed the only reliable method of heating glass houses. By this help we can now not only erect glass structures of every description easily and cheaply, but we can with the aid of a little ordinary skill set up our own heating apparatus. My thoughts were in this way directed the other day when in one of Mr. Mortimer's Cucumber houses at Farnham, Surrey, I saw the extreme simplicity of his method, with the splendid results obtained. Low span houses amply supplied with hot-water piping and furnace power; over the pipes placed on each side of the houses are erected wooden troughs, the farther ends of the bearers resting on a stout piece of quartering fixed to the side walls, the inner ends on uprights. On these bearers are laid stout wooden trellises in long lengths, and to each side is fastened a clean planed strip of wood in long lengths, and 7 inches deep. The troughs thus formed are of any length, according to the house, 18 to 20 inches wide, and 6 inches deep inside. The compost is far from being the Cucumber grower's ideal. Needing so much, and finding good turfy loam difficult to get, recourse has to be had to roadside turf and trimmings, which is carted in as obtainable and heaped to decay. This contains considerable grit as well as fibre, and to it is added some well decayed manure, though not excessively, and a moderate quantity of "Thomson."

The coarser or turfy portions are first laid in the bottom of the trough covering the trellis, and over that the soil just as it is,

rounding it up in the centre, so that the depth about 7 inches. The plants are put out about 18 inches apart; hence, as will be understood, root room is very restricted, and there can be no top-dressing with soil. When the plants get well into bearing, which they soon do, carrying great crops of splendid fruit, all the other assistance given is in the form of artificial manure dressings, or applications of liquid manure. No sooner is a big crop of seed fruits gathered than out the plants go, also the soil and the troughs. These latter are whitewashed with hot lime, then returned to the house. New soil is furnished, fresh young plants inserted, and a second crop of fruit is soon obtained. In this way eelworm and fungoid attacks are avoided by Mr. Mortimer.—A. DEAN.



CATTLEYA LAWRENCEANA.

THIS superb Cattleya is one of the most brilliant of Orchids flowering just now, plants with three or four of the fine spikes having a very bright and effective appearance. It has been known to botanists since about 1840, when it was first discovered in British Guiana by Sir Robert Schomburgk. But to Messrs. Sander and Co. the credit of its introduction to cultivation is due, a collector in the interest of this firm having sent it home in quantity about 1884. The flowers are 5 or 6 inches across, the sepals and petals rosy purplish, the lip similar in ground colour, blotched with purple crimson. The habit is like a strong *C. Mossiae*, but both bulbs and leaves have a reddish bronzy tint.

C. Lawrenceana is as easy to grow and free blooming as *C. Mossiae* or any of the labiata section, but requires more heat and almost full exposure to the sun. The pots need not be large, but must be thoroughly drained, the crocks coming about three parts of the way up, and being covered with a layer of rough sphagnum. For compost moss and peat may be used in equal proportions, plenty of rough bits of charcoal or crocks being added to it or introduced as the work of potting proceeds. The less the plants are disturbed the better, once in three years being quite often enough for repotting, a little top-dressing being allowed in the intervening seasons.

Great care is necessary in turning the plants out of their pots, as the roots are much smaller than those of some Cattleyas, and cling to these with great tenacity. It is much better to break the pots with a hammer, and introduce the pieces with roots attached in the new ones, than to risk injuring the plants by laceration of the roots. In fixing them in the new pots let the principal lead be kept as near the centre as possible; this will prevent their "growing out of the pots" before another renewal is necessary. Keep them up, and finish the line of compost so that the leading bulbs just rest on this.

Care is necessary after repotting, just enough moisture being allowed to keep the roots alive and prevent shrivelling. From the time growth starts until the sheaths are formed and the pseudo bulbs finished, the plants must be kept in a hot and moist atmosphere, such as the evergreen section of *Dendrobiums* delight in. This is, in fact, the principal point in its culture, and no other Cattleya except *C. superba*, a species found growing naturally in proximity to it, requires so much heat. Keep it free of insects and to its proper annual routine of growth, and it will, if suitably treated in other ways, produce a large quantity of its lovely blooms in due season.—H. R. R.

FLOWERS AT WATERLOW PARK.—Inhabitants of North London dwelling in proximity to the above public resort have now facilities for viewing and appreciating many seasonable flowers of more than ordinary merit. Mr. Pallett, the able superintendent, has made the most of the means at his command, the result being that Waterlow Park now presents a floral picture both attractive and interesting. At one point huge clumps of *Alyssum saxatile compactum* are conspicuous, being masses of golden yellow blossoms, and dotted here and there are *Aubrietias*, *Silenes*, *Myosotises*, and other seasonable flowers. Wallflowers form another picture of more than passing interest, as some half a dozen distinct varieties are grown. Amongst these Blood Red and Belvoir Castle strains are prominently conspicuous, and contrast pleasingly with the varying vegetation all round. Grass everywhere looks green and refreshing, and the well kept appearance of turf and gravel walks reflects credit on the superintendent and his staff.—F.

PRECEPT AND PRACTICE.

PICTURESQUE GARDENING—WATER.

(Continued from page 387.)

CONSIDERING the prominent part which water—under its various forms of lake, pool, stream, or streamlet—plays in picturesque gardening, no excuse is needed for stretching our outline in order to embrace it. Moreover, if only for the purpose of cultivating our beautiful aquatic or semi-aquatic plants it is worthy of attention. Obviously all places do not possess this feature developed in ratio to its merits, and others there are again in which its charms are conspicuous by their absence; but few there are, indeed, in which a spring or other inconspicuous water source cannot be turned to good account. Here, as with other phases of developing Nature, or attempting to create it in fac-simile, overstraining for effect may defeat the object. Planning and planting are the primary heads under which this sub-subject presents itself for consideration.

Its employment as a part and parcel of the classical outline of formal gardening necessarily insists upon harmonious blending with it, hence we see cut stone basins and fountains on the smaller scale, whilst on the larger architectural lines run parallel with the principal object, as exemplified in the treatment of the lake at Trentham Hall, Staffs, where the Italian garden is linked to the lake by a handsome balustraded parapet. In this instance, too, is to be found that happy union with Nature and Art whereby no violent contrasts are presented, and the critical eye finds satisfaction in ample breadth and rests in repose on its limits in the distance where woods descend in a natural manner to the water's edge. With this phase of our subject it will be noticed that the planning of bridges is of equal importance whether they be near to or far from the mansion, if visible from it; for if so, they are perforce included in the general design.

But it is to picturesque gardening this paper directly pertains, and it is here this free element gives, or can give, to us as gardeners the most pleasing results. The best designs under artificial treatment are obviously those in which no design is apparent, and bad examples are those which are stiff in outline and of distinct basin-like formation from confinement between banks formed by excavated soil thrown up in making or enlargement. This, however, is not of frequent occurrence, as the lake generally originates in holding back the water by a dam or weir. Islands or islets, if properly disposed and not too lavishly introduced, make an admirable break to an expanse provided that they do not exceed in height the level of the margin. An island as a hump in the water is but a sorry thing, and when further emphasised by a thick planting of vigorous growing trees it is decidedly *de trop*.

Possibly it is not until we descend to the minor key of our harmony in the way of pools and streams or streamlets that our controlling, creative, or manifesting hand is called into requisition, and probably most will agree with me that it is a charming subject and worthy of our best efforts. Our stream, which may be little more than a trickling spring anxious to escape unnoticed at its own sweet will, may be held back at intervals by a little obstructive rockwork naturally inserted in its bed, and by other auxiliary means readily suggesting themselves under varying circumstances be made into a thing of beauty, and with suitable planting, of which in due course, become a source of infinite interest in this most interesting kingdom of picturesque gardening.

Here there is no more delightful object than a rustic bridge with creepers trailing to the water, if it is necessary to have a bridge, or, what is equally to the purpose, made to appear as necessary; otherwise, the purposeless descends to the puerile, and we will have none of it. Rustic bridges of even very primitive construction, which is often the best, are such a pleasing feature in this department that an excuse may occasionally be found for having one to span a ravine or other natural break with the happiest effect. Such auxiliary means to an end involve practically no expense. Our prehistoric ancestor probably found his bridge in a fallen tree; but as we have lost his prehensile qualifications our bridge, if in its simplest form, will necessarily carry the passenger without fear and trembling. I have seen a charming example of this work erected by a handy man, and a little visible bareness in the handrail was corrected by some spare virgin cork.

Stepping stones may in some instances be advantageously employed, particularly in a bog garden, which is only second in point of interest to water gardening proper, and there are few places where even the deficiency of a natural water supply prohibits more pretentious things that do not afford of something being done in this direction. But this, the simplest form of our subject, will not assert itself aggressively. In some secluded nook or retired position where the liquid element is provided and such shelter as the depths of a wood or other means afford from chilling winds or severe frost,

certain plants are provided with a happy home that a more obtrusive position fails to give. With an old quarry revealing on its face the natural strata of rock, a little further excavation at its foot provided a catchment for surface water and an opportunity for planting a couple of M. Marliac's beautiful hybrid Nymphæas which were too precious for relegating to greater freedom.

Over the whole subject there is a natural affinity between rocks and water which can hardly be disregarded. There is something particularly pleasing at those points where a piece of natural rock peeps out from the river's brim or the margin of the lake. In those localities where Nature has denied this privilege I have seen a few introduced with the best effect, and this without any elaboration of detail. We may in this instance plant our rock, or fragment of rock, by literally burying it on the flat, showing little more than a face turned to the water, exactly like what may be often observed in the water-washed course of some stream. Obviously the employment of any kind of stone foreign to the locality would be an incongruity. A little taste, on the lines of right principle founded on observation, can do much in this direction, and what is simplest is often safest, leaving no room for invidious comparison.

One thing I should like to mention to young heads—viz., that it is often their own hands which alone can carry out their ideas. More than one long day have I spent at this work to go home at night tired out, wet through, and dirty all over, but generally satisfied. In the matter of building waterfalls, the chief object of which is the retention of water with the view of having it for effect (or for use perhaps) when most needed, I have suffered too much disappointment from tradesmen's work to trust the matter entirely to them; so much so, that in one very pretty stream we had water and waterfalls in wet weather, but during a spell of drought dry walls and empty basins. Imperfect work of this kind is practically beyond redemption, and wherever or whenever this work is worth doing it is worth doing well.

Our wall, we will call it such, although the name should never be applicable when completed, may often require sinking below the bed of the stream, and carried for some few feet into the bank on either side. I have found it a perfectly satisfactory method to arrange the stones, when selected, in a double wall with an intervening space of, say, 18 inches, which, filled up as the work proceeds with liquid concrete, binds all into an impervious structure. Facilities for letting off the water, should it be advisable to provide for that contingency, can be had by leaving a trap at the base, the setting or construction of which will present little difficulty to an ingenious mind.—AN OLD BOY.

(To be continued.)

IN SEARCH OF SUNSHINE.

THE CITY OF THE FLOWERY PLAIN.

(Continued from page 409.)

THE bulb farms are often kitchen gardens. Most of the growers take a crop of Potatoes off the land before they put bulbs upon it. One of their favourite varieties is about the finest flavoured Potato I ever tasted, and if it maintained its splendid quality on our stronger British soils it would soon be run after. That, however, is extremely doubtful, and it would very likely be worthless on clay. Its name is Wolkhammer. It comes in about January and lasts good till June. The Dutchmen claim to have an early variety of equal merit in the Stegerhoek. Grown in sand enriched with cow manure both of these varieties crop well and cook beautifully. They form a very important dish on the tables of the poorer people; indeed, meals are made of them. A dish of about half a bushel graces the middle of the table, and near it is a large bowl of sauce. Round the table sit the family (usually twelve to fourteen), and in turns each member transfixes a Potato, dips it in the sauce, and crams it whole into his mouth. One gulp disposes of it. It is not uncommon, when wandering through a village at mealtime, to see a fat and grinning child come running to the window with a large Potato spitted on a fork. He holds it out to you, and while you gaze enviously he whips it into his mouth as quickly as a toad would a woodlouse, and swallows it without a blink.

It seems odd to us, but is after all not surprising, that an experiment with Magnum Bonum turned out a failure. One of the growers imported some and grew a good crop; but it was not known on the market, and the growers would have nothing to do with it. Potatoes are not planted in a lined trench as with us, but are simply dropped into a hole made with a large dibber. The plan answers as it would not do on the Wealden clays. Husbandry in general is, in fact, altogether lighter and simpler. The labourers

use a large shovel nearly heart-shaped in digging, and work very rapidly. Forks are useless; the soil would fall between the tines like water through a sieve. Trenching is trenching in Bulbland. It is not uncommon for the soil to be turned up 5 feet deep; in fact, it is the rule to turn the top soil right down every three years or so, as it gets bulb-sick. The subsoil brought up is not sour, nor does it look unkind. Manured and cropped with Potatoes in spring, it is in good condition for bulbs the same autumn. No doubt the porous nature of the soil, combined with the vigorous stirring it receives, secures aëration at a far greater depth than would be possible in strong land.

Asparagus grows to perfection, as might be expected. Dirk the Dutchman does not share our partiality for green nobbs. He likes his Asparagus white, and plenty of it. As soon as the heads show a spade depth of the soil is turned on to the top of them, consequently they grow to a great size and blanch. "Ah!" someone may remark, "what about the toughness?" My dear sir, it melts like marrow. When cut the Asparagus is usually put into water and eaten the same day. Perhaps if it were kept a day or two and then sent over to England, a week elapsing from cutting time to use, it would be as tough as a good deal of the French is. So far as can be learned, no particular care is taken in the cultivation of the crop. It grows, as Asparagus will grow, on porous sandy soil not many miles from the sea. I am inclined to think that a profitable trade could be done in it, the natural conditions being so favourable; but the growers have something better to occupy their attention.

Another vegetable grown under different conditions from those which exist in this country is variegated Kale. The Dutchmen have some very good strains of it, quite as good as, if not better than, our own; and having got them they are not afraid to use them. In the grounds at the front of many large villas are seen circular beds filled with these Kales. The plants are about 2 feet high, of a good pyramidal habit, and beautifully coloured. They are genuinely handsome, and although they do not secure very much attention in bulb time they do in the dull season, imparting an agreeable warmth of colour to bare surroundings.

The city of the flowery plain is gay and lively in the glowing springtime. Its handsome streets, fine houses, historic church, galleries, and interesting crowds make it something more than a centre for the bulb villages; but features such as those I must pass. Scarcely a mile away is the nursery of Messrs. Ant. Roozen and Sons, one of the most attractive to the amateur. A steady walk for about ten minutes straight from Haarlem Market place took me to a villa surrounded by bulb beds, and rising from the latter was a bold name board. It was enough, although both board and villa were new. Great extensions have been made since my last visit. More houses have been built and more land taken. There is an air of substance about the whole establishment which inspires respect. The drying stores, packing houses, and offices are handsome, spacious, and of the best construction. There is a temptation to overlook these evidences of strength in the brighter, but more ephemeral, pictures of the beds, but they are worth mentioning for all that.

History repeated itself in one respect—the stalwart sire was absent, but two stalwart sons represented him. I was interested at the outset in a splendid house of Amaryllis, chiefly because they represented our best types. Well-rounded flowers of great substance and rich firm colours were conspicuous among a beautiful batch of novelties. They are a new departure I understood, and represent a wonderfully good start. It may be taken for granted that any class of bulbous plants which finds favour in England will very soon receive the attention of these wideawake Dutchmen. In anything that affects their own line of business they are as watchful as cats. There is something instructive in the plasticity displayed all over the Continent in whatever concerns John Bull's spending department. Our language is thoroughly mastered, our country is tramped from end to end, our methods of trade are studied. A take-it-or-leave-it air is never assumed. There is no pretence that the universe is eagerly bent on getting some particular class of goods. On the contrary, the prevailing notion is that what people want shall be supplied to them, and if it does not exist it must be brought into being, and put on the market at the earliest possible moment.

Economic homilies being pardonable only as a digression, I return to my muttons. Messrs. Ant. Roozen & Sons give a good deal of attention to John's partiality for something new. It is a weakness of his to keep trying fresh things, and they are thoroughly familiar with it. I had a ramble round their novelty department,

and did not go unrewarded, although many of the plants I saw were not in flower. For instance, the beautiful double white Colchicum (*Colchicum autumnale albo-pleno*) was not flowering, but I was not surprised to hear that it is in considerable demand. The same with the white Pasque Flower (*Anemone pulsatilla alba*), a most pleasing and attractive novelty. *Allium giganteum* is being asked for, and so is *Deutzia Lemoinei*. I saw a charming novelty of the Dog's-tooth Violet race in the form of *Erythronium grandiflorum* var. *citrina*, pure yellow and very beautiful. Amongst the Hyacinthus or Muscari there was *comosus albus*, a white sort.

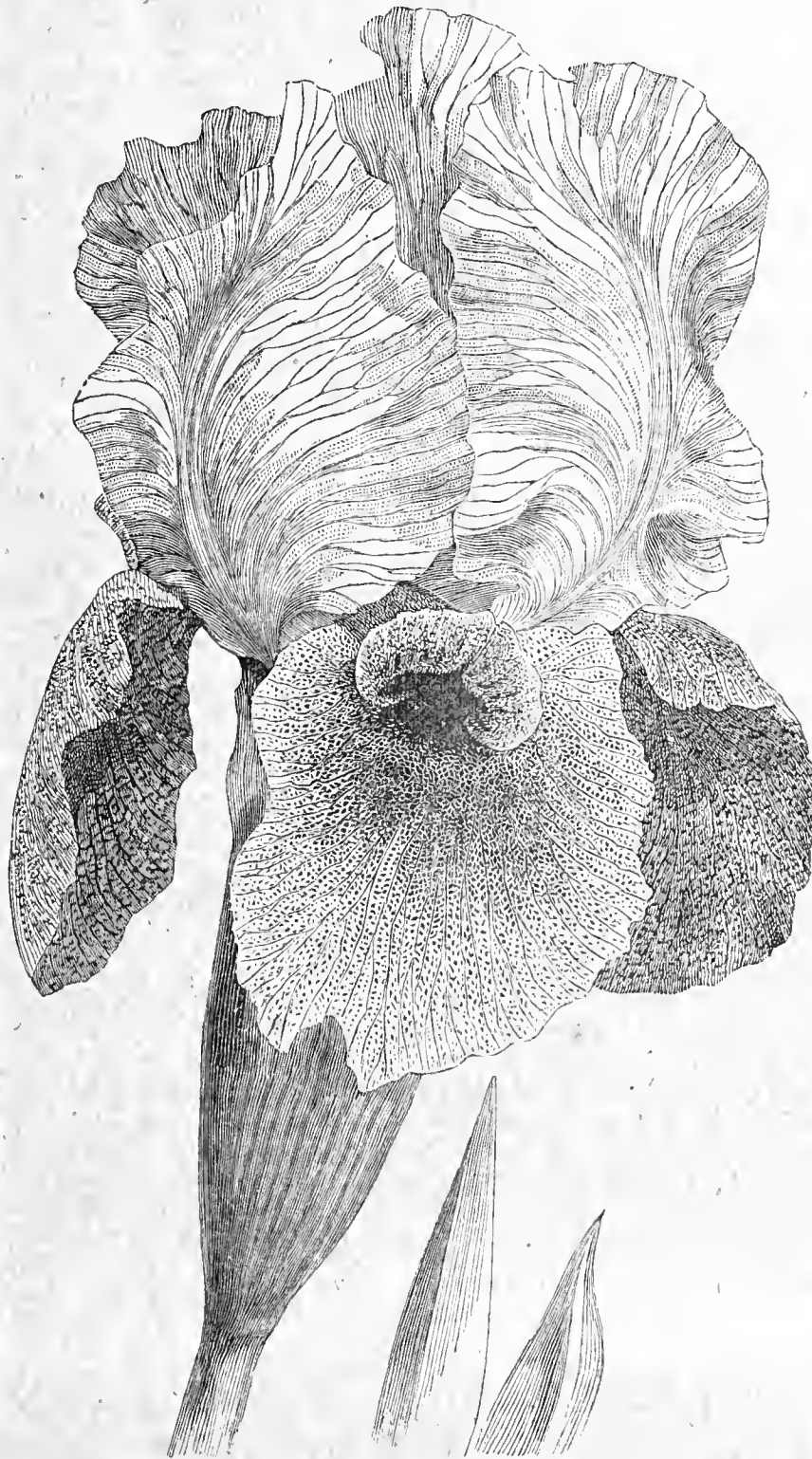


FIG. 87.—IRIS LORTETI.

These are not a largely grown class, but to see them in massed beds in Holland is to fall into prompt and permanent admiration.

There are two genera which are grown on a truly enormous scale at Overveen; one is Iris, the other Pæony. To say that these are cultivated by the acre is a very mild assertion, innocent of any shadow of exaggeration. It would be almost worth a journey to see them in flower, the Pæonies in particular, but that, of course, would have to be later than mid-April. You may get the late Hyacinths and the early Tulips at Easter, but you will not get Irises and Pæonies in quantity. Amongst the newer Irises in considerable demand are Bakeriana, Gatesi, Lorteti (fig. 87), Milesi, Rosenbachiana, and sindjarensis. Pæonia Whitmanniana is greatly asked for, and in addition to this beautiful creamy Caucasian species there is a very large assortment of the best varieties of other sections. Pæonies grow luxuriantly and flower magnificently in the Haarlem sand, and perhaps the principal reason is that they have a deep and uninterrupted root run. When the lustrous Pæony can stretch his toes down several feet, then is he gay, joyous, and prolific.

Crib him, cabin him, confine him, give him a tough sole 6 inches below the surface, throw his roots up to the heat instead of down to the moisture, and he exacts the cruel revenge of barrenness.

Amongst the comparative novelties there are *Lachenalia Regeliana*, with light yellow horizontal flowers; *Lilium Grayi*, *Owstrowskya magnifica*, *Physalis Alkekengi Francheti*, *Sternbergia macrantha*, *Tritoma hybrida* R. C. Affourtit, and several Tulips. *Bouton d'Or* is a very pretty bright yellow species; *Kaufmanniana* is a fine cream, and *saxatilis* a charming rose and yellow. The early Dutch varieties are indescribable, both as to numbers and character. I can only say that *Golden King*, a splendid double yellow, selected from *Tournesol*; *Golden Queen*, a fine single yellow; *Grace Darling*, the true *Scarlet Pottebakker*, a magnificent variety; *Jenny*, a beautiful rosy red; *Pink Beauty*, and *Queen of the Netherlands* struck me as being amongst the best of the Tulip novelties.

They have taken me back into the fields again, those wonderful fields of light and colour, of all things gay, of Nature in one of her many aspects of bewildering beauty, of perfume, of sunshine, and of birds' songs. There I linger, and there I return for many a morning, and afternoon, and evening of pure enjoyment. When at length I leave the city of the flowery plain and its surroundings, it is from a little railway station bearing a name that, translated, means "the song of the birds," and which is situated in the midst of a great lake of vernal beauty. And of the ceaseless twittering there, the wayside fragrance, the exquisite flowers, sweet remembrance will come, perchance to freshen the aridity of the years that are to be.—W. PEA.

ROYAL HORTICULTURAL SOCIETY.

SCIENTIFIC COMMITTEE, MAY 11TH.—Present: Dr. M. T. Masters (in the chair); Mr. Douglas, Mr. McLachlan, Rev. W. Wilks, Dr. Müller, Dr. Bonavia, Mr. A. Sutton, and Rev. G. Henslow, Hon. Sec.

Weevils on Fruit Trees.—Mr. Rbt. Smith of Shrewsbury forwarded some living specimens received by him from Mr. J. Jones, Chelmick Pools, Church Stretton. They were described as attacking Plum and Apple grafts, Roses and Raspberry buds. They proved to be *Otiorynchus pisipes*. The trees and bushes might be sprayed, though a better plan is to shake the boughs over a large sheet of paper, in which they can be caught and then destroyed.

Birch Branch with Phytomyza.—Dr. Masters showed specimens illustrating the early stage of the attack on boughs by this insect. It is not often the commencement of the so-called "Witch Brooms" can be detected as in this instance.

Abies bracteata.—He also exhibited sprays of this handsome tree, remarkable for the silvery under surface of the leaves, which are about 3 inches in length. It bears large male catkins, and elongated pointed buds. It is a native of S. California. It is remarkable that it fails to flower on the Atlantic side of N. America.

A. Menziesia.—He also showed a bough of this splendid timber tree from Vancouver.

Petalless Apples.—Flowering shoots of the Ecklinville (Seedling) Apple were received, remarkable for having no petals. They were sent from the Glewstone Gardens, Ross. There were 600 bushes of twelve years' growth, all being similarly affected. No particular cause could be suggested.

Double Narcissus.—Dr. Masters showed a single and double flower of a *N. incomparabilis*, of a somewhat novel character. The perianth consisted of twelve pieces regularly arranged in "threes." The short cup-shaped corona as well as the stamens were totally absent; but the styles above the tube were free and petaloid, suggesting the normal condition in an Iris.

Sclerotia (?).—Mr. M. Taylor, of The Gardens, Penbidw Hall, Nannerch, sent some remarkable specimens of a fungus consisting of large branching lumps, which appeared in a Mushroom bed. They were forwarded to Kew for investigation.

Improved Method of Grafting.—Mr. Robt. Smith, of Bradwell Villas, Bishop Street, Shrewsbury, sent a number of specimens of grafts, illustrating a new method. This being, that in preparing the scion, while one "tongue" is inserted as usual, the opposite half of the scion is carried over the flat top or "crown," and inserted on the opposite side, or two grafts may be thus inserted on opposite sides of the stem, the result being, as shown in the specimens sent, that the summit is completely covered in with new growth. This was seen in small specimens of whip-grafting, but none were sent to show how far large crowns would become covered over. Another advantage arose from the new method of preventing loss of grafts by wind breakage, for it thus gave a better and stronger union. It was thought by Mr. Douglas that it was a decided improvement upon the old method, as long as the scion and stock were of the same size; but further information was desirable as to the success when the surface of the stock much exceeded that of the scion.

Double White Auricula.—Mr. R. Dean sent a plant, which was the result of fifteen years' selection from a single white variety; the petals were not of a pure white, but slightly yellowish-green tint.

WINTER IN MAY.

AFTER passing through a mild winter, when the lowest point reached on the thermometer was 14°, or 18° of frost, on the night of the 10th inst. we had 8° frost registered by the thermometer 12 inches from the ground. On the 11th a heavy shower of snow fell at 5 P.M., but the morning of the 12th will long be remembered, for the thermometer registered 12° of frost. Of course Potatoes are blackened; Gooseberries nearly ready for tarts; about seven-eighths of the crop gone, turned to an ashen-grey colour, and just on the point of falling; Currants in a similar plight. Fortunately the Strawberries were not sufficiently forward to be damaged. It is too early to estimate the amount of damage done to orchard fruit.—JOHN CAMPBELL, *Mickleover Manor Gardens, Derbyshire*.

THE frost on the night and morning of May 12th-13th has done much damage in Worcestershire to Strawberry blossom, Peas, Potatoes, Asparagus, and Plums. Of the latter the standard "Egg Plum" or "Pershire," appears to have suffered the least injury. The injury appears to have followed the greatest atmospheric moisture, because in the same fields, which are generally level, some patches of Peas are injured and others are unhurt; the difference in elevation being only a few inches.—J. UDALE, *Droitwich*.

AFTER the terrible frost of last week, "No fruiting this year" was the cry of village folks. I thought, being a beautiful morning, I would take a stroll round a few Strawberry fields, and see the results. Going through some of Mr. Hooper's fields I could not help noticing black eyes by the dozen on each root. Plant after plant was the same; every bloom was destroyed, and hundreds that were not open were in the same sad state. What the effect of this frost on Strawberries will end in is hard to describe. Plums, Damsons, Pears, Apples, and all other fruits are the same. Peas with young pods have perished; Potatoes all cut to the ground. It was a terrible sight.

Tomatoes indoors are dreadful; flagging is the enemy. Day after day we are constantly pulling up and planting. Such strong healthy plants the day before suddenly fail; it seems to me a mystery why they should go so quickly. Blooms do not set well, and what fruit there is does not swell. One large market nurseryman has had 500 to 600 plants go off in that manner in five houses of 100 feet long. I have pulled some up and cut the plants off about 3 inches from root and found the stem under the rind quite hard, so that no sap could pass and support the foliage. What is the cause, Messrs. Abbey and Dyke, and what can be done in the dilemma?—H. PEARL, *Swanley, Kent*.

VERY poor hopes of a good fruit crop for the present year are already being expressed by gardening friends, because of the long spell of bitterly cold north-easterly winds that have prevailed, and the numerous sharp frosts experienced. Most distinctly Pears, Plums, and Cherries first, then Apples, have had to endure during their flowering worse weather than was experienced when Peaches and Apricots on walls were in bloom. An old rural saying, that where the wind is on March 21st, there will it be till midsummer, seems likely to be realised this year, for it does stick in northerly and easterly quarters very much. Naturally we shall look this season for the fruit returns that will be made later on with special interest. How useful would it be could we learn how 'ar trees sheltered by forest or other tall trees had been less injured than were trees fully exposed to the winds. Pears, Cherries, and Apples have produced a marvellous display of bloom, but how often in the experience of old gardeners has it been found that such floral masses have been the precursors of a good fruit crop. The present season, whether due to that or to low temperature and wind, seems likely to be no exception. It is, indeed, intensely disappointing. Here is one eminent gardener's report to hand:—"Apple bloom is looking exceedingly crippled; Pears are dropping badly where they had appeared to be well set; Plums will be rather thin; Cherries good if they do not fall; Peaches and Nectarines a full set, but leaves much blistered with cold; Apricots thin." From other directions comes information that Currants and Gooseberries are falling, and frosts have done harm to the early Strawberry bloom.—A. D.

THIS district, in common with many others, was visited by an unusually sharp frost on the morning of the 13th inst., causing irreparable damage to the early and second early Potato crops, and also Strawberries, which were coming into bloom. In the open quarters every plant was cut down, as also were those on south borders; but, strange to say, on an east aspect much less damage was done. In the open fields the density of the hoar frost in the early morning was extremely wintry, and on the broad foliage of Cabbage and Broccoli in the garden it had much the appearance of snow particles. Broccoli had the appearance of being spoilt, but being a dull sunless morning, so unusual after such frosts, the damage done was very slight. French Beans growing at the foot of a west wall did not suffer much loss, and fortunately there were no Runner Beans sufficiently forward to be affected. Asparagus, too, escaped what I fully expected to be the loss of a morning's cutting. The early Strawberries suffered badly, the majority of the expanded flowers now showing black centres. Late ones are unhurt. Rhododendrons in flower were all spoilt, and Ampelopsis growing over arches lost many of their leaves. The spring has been very cold and backward, or the same amount of frost might have caused much greater injury. Our thermometer indicated 6° of frost, but outside

the garden it must have been several degrees colder, judging from appearance in the open fields.—W. S., *Rood Ashton, Wiltshire*.

[We have had many allusions to the damage done by the frosts of last week. We hear the first blooms of Strawberries, which invariably give the finest fruits, in the extensive collection at Chiswick are blacked, as they are in numbers of other gardens in the South. In one instance the later buds are said to be killed. In passing through Mr. A. H. Smee's interesting garden in Surrey the other day, we observed that his gardener, Mr. Cummins, had been on the alert and saved a square of Potatoes by covering them with hay, the plants in one row left uncovered being cut to the ground. The full extent of the injury done to fruit crops generally is not yet fully ascertained.]

PLANT CONSTITUENTS: SODA.

(Concluded from page 368.)

WHEN washing soda is used as manure it is crushed fine and distributed broadcast at the rate of half to 1 oz. per square yard, 1 to 2 lbs. per rod, 1½ to 3 cwt. per acre, the price wholesale being about 5½d. per stone (14 lbs.), 3s. 6d. per cwt., bag included. For "greens" it is given at the time of setting, usually the lesser quantity, and if occasion require repeating the dressing before winter, but keeping the soda from the hearts of the plants. It is good for everything liable to grow too much to top, especially crops prone to suffer from succulency of growth during frost in autumn, winter, and spring, and answers for either vegetables or fruits. It is especially valuable for winter Spinach, Strawberries running too much to leaf, and all plants that need solidification and fortifying with silica. It is better than salt for most crops, as it supplies the soda without the chlorine, which is apt to retard the growth too much in growing for market.

Sodium sulphate, or sulphate of soda, Na_2SO_4 , 142, also called Glauber salts and salt-cake, is a compound of sodium and sulphuric acid. In the crystallised state it contains about 56 per cent. of water, and when exposed to the air it yields by parting with its water of crystallisation the anhydrous (that is, without water) salt, a good commercial article containing from 94 to 98 per cent. of sodium sulphate. It is sometimes obtained as a bye-product in the manufacture of nitric acid from nitrate of soda, when the sulphate contains small quantities of nitrate of soda, and thus has better fertilising value. The manurial property depends on the sulphur; this, in the form of sulphuric acid being supplied to the land and plant, hence sulphate of soda has been found to be a good manure for cereal and leguminous crops, especially on light soils.

It should be applied in a fine powder at the rate of ½ oz. per square yard, 1½ lb. per rod, 2½ cwt. per acre, which is a suitable application for crops—cereals, Clover, grass (including lawns), Beans, Peas, and Potatoes—generally. It is a "growing" manure by virtue of the sulphur, therefore should be applied in the spring or when growth is desired, which can only be when the heat and moisture favour. The soda certainly profits both fruits as well as grasses, and legumes on light gravelly soils; but the sulphur can do little good on moist land, and the soda left may do harm. Sodium sulphate mixes easily with nitrate of soda, phosphates, and other manures, there being generally plenty of it in "special" manures for Bean, Clover corn, and Potato crops.

Sodium chloride or common salt, NaCl , 58.5, has been used as a manure from very ancient times, but its action upon plant life is little understood; yet that on the soil is known to be chemical and mechanical, and the resulting changes beneficial to many garden and most farm crops. It is used to some extent on grain crops, especially on Wheat, to prevent excessive growth of straw, brightening and toughening it, consequently better enabling the plant to resist the attacks of rust and other parasitic fungi. It also acts well against weeds, root insects, and molluscs, retaining moisture in light soils, while its action upon soils rich in nitrogen restrains the growth of the plant, which may be due to the chlorine killing, this hindering the development of the nitrifying micro-organisms, whilst the soda, or rather the salt, bodily acts on the silica, and so fortifies the plant with this substance. Salt acts beneficially in many soils by making potash, lime, and magnesia available as food for plants. It decomposes the double hydrous silicates of calcium, potassium, and magnesium, displacing first lime, then magnesia and potash and some phosphoric acid. Salt also hastens the decomposition of organic matter, "fixing" the ammonia by converting it into ammonium chloride.

Salt also possesses the property of flocculating fine earth, thus it exerts an important mechanical influence on compact clayey soils, and is otherwise useful in the soil and plant. When used to stiffen the straw of Wheat or any other plant 1 oz. per square yard, 2 lbs. per rod, 3 cwt. per acre may be applied in the spring, always by the time or a little before growth for the season commences in the plant. For Brassicas and "roots," including Jerusalem Artichokes, Potatoes, and Yams, also Tomatoes, the salt, always crushed fine, should be supplied at the time of sowing, setting, or planting out. Double the amount of salt may be employed on land for the Cabbage tribe, or in the case of crops that have to stand the winter the quantity specified may be given at the time of setting out and a similar amount in late September or early in October, but this dressing must be kept from the hearts or useful leaves of the plants, distributing it between the rows. For autumn-sown

Onions and winter Spinach the salt should be supplied at sowing time, while for spring Cabbage and Lettuce it may be applied at the time of transplanting. The object in all these cases is to render the plants sturdy and hardy, also to destroy their enemies—the slugs and other predatory pests.

For leguminous crops salt may be mixed with gypsum (ground) in equal proportions, applying 2 ozs. per square yard, *4 lb. per rod, *6 cwt. per acre. Good results follow a dressing given at the time of sowing, or in the case of autumn-sown Beans or Peas the dressing should be given in the spring, when the plant commences growth for the season. It induces sturdy growth, prevents an excess of haulm or straw, and concentrates the energies and food on the pods, securing an abundance of large and well-filled, such as only sturdy and healthy plants can produce. The mixture acts well on bush and other fruits that grow too much wood for the plentiful production of fruit, being as suitable for stone fruits as other kinds, causing lank and sappy growths to become sturdy, short-jointed, and fruitful. The mixture should be applied in the spring, when the plants are starting into growth or swelling the buds, and does not interfere with the beneficial action of nitrogenous or ammoniacal substances present or supplied to the soil, but conserves them for the use of the plant, whilst securing their acting in the most desirable way for profitable returns.

As an ingredient of general manures salt acts as an antiseptic, retarding the decomposition of ammonium urate, so that more of the urate remains available as such for the feeding crop than would be the case if nitrogenous or ammoniacal manures were used alone. It was formerly mixed in equal proportions with Peruvian guano before applying it to the land, and 1 oz. per square yard, 2 lbs. per rod, 3 cwt. per acre gave much better results, as regards a sturdier, healthier, and more productive plant, than was obtained by the use of guano alone. The guanos of the present time generally contain sufficient sodium for practical purposes, so that there is less need to mix salt with them now than was the case formerly. Nevertheless, the nitrogenous guanos give better results when a third part of common salt is added—that is, two parts nitrogenous guano, and one part salt. Salt may also be used along with nitrogenous or ammoniacal manures, the object being to counteract the tendency of these to produce exuberance of growth, and thus checking over-luxuriance secure a maximum of useful produce; for what profit is there in rank Potato tops without corresponding sound, best-quality tubers, or in luxuriant "grass" without equivalent grain, or in an exuberance of foliage without an abundance of large, clean fruit?

The need of sodium by certain plants, such as Asparagus, Seakale, and other seaside plants when grown inland is a vexed question. The chemist scores when he tells us that sodium is not essential for the production of the finest Asparagus and Seakale. † "Herapath made two analyses of Asparagus, one of the wild and the other of the cultivated plant, both gathered in flower. The former was rich in sodium, the latter almost destitute of this substance, but contained correspondingly more potassium.

ASH INGREDIENTS OF ASPARAGUS.

		Wild.	Cultivated.
Potassium oxide ...	...	18.8	* 50.5
Sodium oxide ...	...	16.2	trace
Calcium oxide ...	...	28.1	21.3
Magnesium oxide ...	...	1.5	—
Chlorine ...	...	16.5	8.3
Sulphur trioxide ...	...	9.2	4.5
Phosphorus pentoxide ...	...	12.8	12.4
Silica ...	...	1.0	3.7

"These results go to show—it being assumed that only a very minute amount of sodium if any, is absolutely necessary to plant life—that the sodium which appears to replace potassium is accidental, and that the replaced potassium is accidental also, or in excess above what is really needed by the plant, and leaves us to infer that the quantity of these bodies absorbed depends to some extent on the composition of the soil, and is to the same degree independent of the wants of vegetation."

The Beet, Cabbage and Carrot, as well as Asparagus and Seakale, are seaside plants, but they all grow well inland under cultivation and in comparative absence of sodium compounds. Which are the healthiest or freest from disease? The cultivated or the wild? This is an aspect of the question apt to be overlooked by chemists, who make out that sodium is not indispensable or that a small amount suffices for the requirements of vegetation, and that most soils contain sufficient. What about the amount of soda supplied in the commercial fertilisers, kainit, and farmyard manure (commonly 1.9)? Is there enough in these substances to meet the requirements of cultivated plants for sodium? If so, are the plants as sturdy, hardy and disease-resisting as those growing on land to which a judicious dressing of common salt is occasionally applied?

Expedient dressings, such as are often given Asparagus beds, ostensibly to benefit the "grass," but really for destroying weeds, express

* The amounts are rather more than the rate per square yard, but round figures are given for convenience.

† Johnson's "How Crops Grow," page 190

nothing but the power of some plants to resist the injurious effects of common salt, the plants certainly not being benefited. Yet the moderate use of sodium chloride is not without its corresponding advantages in hardiness of plants and comparative freedom from attacks of predatory pests. It is also useful for mixing with compost heaps, and acts well against couch grass in the land.—G. ABBEY.

SUMMER BEDDING.

I DARE SAY I shall be called over the coals about plants I intend to introduce in my bedding arrangements, and others I have purposely left out, as many will not perhaps consider them as bedding plants. However, I do not intend to confine myself to flower beds, for I consider a great many of the prettiest effects are otherwise obtained.

I will commence with flower beds, which we will suppose are in front of the drawing-room and dining-room windows, and are of good size. The design of the beds should be to suit the form of bedding you are going to carry out. I myself prefer large beds, something after the style of those in Hyde Park, not a fantastical design of small beds, which look pretty when no plants are in them and the reverse when filled. I also strongly condemn the carpet bedding system for a gentleman's residence. It is very well for the parks, but one gets tired of looking on the same thing day after day. I will now give a few of my own arrangements and the size of our flower beds, which of course might be smaller or larger to suit taste or position, but it must be borne in mind that large beds are best for large plants.

We have a centre bed 26 feet long by 12 feet wide, with rounded ends. The middle row is formed of mixed Ivy-leaved Pelargoniums, trained to three stakes 2 feet out of the ground, taking nine plants $2\frac{1}{2}$ feet apart, the end plant being 3 feet from the grass edging. Between each pair of these is a plant of *Lilium auratum*. On each side of this centre row, and 2 feet from it, plant mixed standard Fuchsias, eight plants on a side, and trained to 3 feet high, with a small head, and secured safe to a neat green stake, which runs up into the head. Between them we plant *Lobelia cardinalis*. The Fuchsias should come opposite the *Lilium auratum*s and the *Lobelias* opposite the Pelargoniums. Next take a row of Ivy-leaved kind, the same as the centre row, all round the bed and 2 feet from the edging of grass and $2\frac{1}{2}$ feet apart, and between these plant *Lilium lancifolium roseum*. Fill the whole up with mixed *Verbena*s, dwarf *Petunia*s, and *Viola Ardwell Gem*, a splendid yellow free-flowering variety, and about 6 inches from the row of "Geraniums" place a row of Sutton's Crimson Gem *Begonia* all round the bed, then a row of *Begonia Princess Beatrice*, finishing with *Ajuga reptans purpurea*. Now if you have only a small lawn this one bed to my fancy would give more pleasure during the summer, if well looked after, than six or seven of smaller size. I saw a striking instance of this last season in a large place I went to look over. A beautifully kept lawn, with an endless number of flower beds just in front of the windows, and nearly the whole bedded with Geraniums (I might say thousands of plants). I was told these had been a blaze of bloom, but, alas! the dreaded rain had come, and on the whole of these plants not a single good truss of bloom was to be seen, but just a mass of green foliage. I could imagine the contrast with this and the bed I have described.

In arranging a round bed 12 feet across place a good large *Canna* in the centre (*Ehmanni iridiflora*), round this place five dark-leaved *Cannas* (*Frangois Lapent*), 2 feet from the centre one. About 2 feet from last plant five standard Fuchsias, just opposite the *Cannas*, and between the Fuchsias plant green-leaved *Cannas* (such as *Arthur Crozy*), growing about $2\frac{1}{2}$ feet high. Fill this in with a few *Browallia elata*, *Phlox Drummondii*, mixed *Mimulus*, and a few *Gladiolus* and *Hyacinthus candicans*, edged first with *Begonia Crimson Gem*, and next *Cineraria maritima*, finishing off with *Ajuga reptans purpurea*. On a diamond-shaped bed, about 9 feet across, place a good plant of dark-leaved *Castor Oil* in centre (*Ricinus Gibsoni*), and plant at each angle a variegated *Maize*, with a good plant of *Salvia Sutton's Scarlet Queen* between them. The *Maize* and *Salvia* should be 2 feet from the grass edging. Fill in with yellow and white *Marguerites*, and dot in four good plants of *Salvia patens*, one behind each scarlet *Salvia*, and four good clumps of *Lilium tigrinum*, one behind each *Maize*. Edge first with dark-flowered *Heliotrope* (*President Garfield*), and finish with *Euonymus radicans variegata*. A good effect on an oval bed may be formed by dotting in seven trained Ivy-leaved Pelargoniums, 2 feet high, six *Swainsonia Osborni*, with six *Lilium lancifolium roseum* dotted down the centre row, filling in with *Marguerite Carnations* and *Lobelia speciosa*. Edge first with *Marigold Legion of Honour*, and finish with *Dactylis elegantissima variegata*. This grass to keep it in nice order should have the outer foliage pulled off every time the bed is edged, or it is apt to become shabby before the summer is over.

To make a round bed, $8\frac{1}{2}$ feet across, look attractive, place in the centre a *Canna* (such as *Florence Vaughan*), and three others round it, about $2\frac{1}{2}$ feet from the centre one (such *Cannas* as *President Carnot*, dark leaf and large red flowers), dot in a few well prepared *Celosia pyramidalis*, and then fill up to within 18 inches of the grass edgings with double mixed *Zinnias*; 15 inches from the grass edging take a row of *Tropaeolum Minnie Warren* and *Lobelia speciosa*, planted alternately all round the bed, finishing with *Euonymus radicans variegata*. Charming beds may be formed with tuberous-rooted *Begonias*, with a few *Liliums lancifolium roseum*, *rubrum*, *Kraetzeri*, and longiflorum *Harrisi* dotted about amongst them, and edged with *Begonias Princess Beatrice*,

Afterglow, or *Ajuga reptans purpurea*. I prefer hardy edgings to my beds, as they are there ready for the spring, and will stand two seasons very well with a little fine soil worked in and about them with the hand. The dark-leaved *Ajuga reptans* is a very useful plant; where it does well it saves me growing *Iresine*, and also comes in for a spring bedding plant. If wanted for its foliage, the blooms should be kept pinched off, but it is really a very pretty spring flowering, as well as foliage plant; sometimes the leaves decay a little in the winter, but they soon shoot out again in the early spring, and look as well as ever.

Before leaving this portion of the subject, perhaps I had better explain how I grow these plants ready for the beds. The Ivy-leaved Pelargoniums are rooted in August in the usual way, and established in 60-size pots. When these pots are filled with roots, some time after Christmas, or when the first vinery is started, they are transferred to 32-sized pots, and three stakes of the height desired placed in each pot, a wire ring being fastened to the top of the stakes the same size as the rim of the pot, or nearly so. The plant is kept neatly tied round these stakes till bedding time, and about a month after that I take no more trouble with training. The Fuchsias are rooted about the middle of the summer, and potted singly. They are kept to one straight stem, and when cold weather sets in are treated to a moderately warm house or pit, and shifted into 48-sized pots, having a neat stake placed to them the desired height (3 feet), and when they get to the top of the stake the top of the plant is pinched out about 3 inches below the top of the stake. The stem is disbudded to within three pairs of leaves from the top of the plant, and then allowed to make a small head out of these three top buds. As soon as these buds have shot a few inches the points are pinched out, and so on till about the middle of May. We then have a nice little head, which shows the bloom to advantage. About the end of March the plants have their last shift into 24-size pots, and by the first week in June are ready for planting in the beds. When planted they should be secured to a neat green stake, which runs up into the head, and the shoots all secured to the stake with green or brown fine twine. It will then take a very rough wind indeed to damage them, in fact they will stand much better than Dahlias.

These Fuchsias will do a second summer, but after that the heads get too large, and are better used for other purposes. When I want to keep them a second summer I shake all the old soil from the roots, then prune the head and roots back, pack them as thickly as I can into an old wine case, and cover the roots with garden soil and road grit, then store them away in a cold pit, outhouse, or stokehole. With about three waterings they keep all right till the end of February; then they must be potted in the usual way. I might say the place they are wintered in should be quite cool, but free from frost. Zonal Pelargoniums you will see I have left out of my bedding arrangements, for the reason I have already mentioned. They have more than once disappointed me, for just at the time I have wanted my beds to look the brightest a rain has come, and then the blooms are spoilt for several days. I should, however, recommend a few in the mixed borders, and also for vases.—(Read by Mr. W. TOWNSEND at a meeting of the Reading Gardeners' Association.)

(To be continued.)

A REVERIE.—There is always a willing public to take hold of a novelty and test it on its merits, but perhaps there is no section of these purchasers more ready to experiment than the men who grow fruit for profit, and especially small fruits. The records of novelties of Strawberries, for example, during the last few years show some very remarkable, not to say surprising, facts in this respect; hosts of varieties have been offered, hosts of growers have tried them, and the places thereof know them no more. Yet, for all that, it is not to be said that progress is not made; quite the contrary, progress goes on apace, but of the thousands of subjects offered, new and distinct though they may be, yet do they fail to prove superior in some one essential characteristic, while not falling behind in any other. Nature is not lavish in the production of marvellous departures from the normal type—freaks are unusual to her, and it is only a freak, so to speak, that can show any wide divergence from well-established lines. Nature and man are striving to two totally different ends; Nature has in view the perpetuation of the species by progeny of the individual, and her best efforts are directed towards the one end of perfecting seed. Man, on the other hand, in his demands, more frequently than not, strives to "develop" some special part of an organ to a monstrous extent, and this will be done at the expense of some other part of the plant, say in constitution or size. That plants so grown through a long series of generations do lack constitutional vitality would seem to have an abundant proof in the proneness of certain high-bred types to succumb to disease. In the event of the forcing and directing hand of man being withdrawn, Nature again steps in, and in a surprisingly short period of generations she will have brought the object of man's neglect into harmony once more with the multitude around; energy will be now directed to the perfecting of the seed, and all the luscious parts so valued by man, reduced to the extent that the necessities for their distribution will allow. In the meantime, vigour and health are regained. When man sets out to run in the face of natural law he has a hard time, and so it is that the raiser of novelties is so often doomed to failure, for Nature has the first pull, is ever present, ever ready to grab hold of the least advantage given. Nature is persistent, man is erratic.—("American Gardening.")



"JOURNAL OF HORTICULTURE" EDITORIAL DEPARTMENT.—

From the present date, and until further notice, it is particularly requested that all letters and parcels intended for the Editor, also all communications for insertion in the *Journal of Horticulture*, be addressed to 8, *Rose Hill Road, Wandsworth, London, S.W.* N.B.—Business letters and advertisements must be addressed to the City Office.

— WEATHER IN LONDON.—The latter part of the week ending on the 15th inst. was characterised by intensely cold winds that did much to retard vegetation of all kinds. Sunday brought a change to warmer weather, with a short shower. Monday and Tuesday were brilliantly fine, and the sun was very powerful. Wednesday was cooler, but fine.

— WEATHER IN THE NORTH.—Up till Thursday, 13th inst., when 6° frost were recorded, the weather continued cold and ungenial. A change then took place. Friday was dull but milder, and Saturday pleasant. Although the wind has been in the east bright sunshine has since prevailed, and vegetation is advancing rapidly.—B. D., *S. Perthshire*.

— THE TEMPLE SHOW.—For the tenth time the Royal Horticultural Society will hold its great annual flower show in the Inner Temple Gardens on May 26th, 27th, and 28th. There is sure to be a marvellous display, judging from the very large number of entries which have been received, and there is reason to believe that some of the exhibitors will show something original this year in the way of displaying their plants. The Judges will meet in the Secretary's tent at 10.30 A.M.; the Fruit, Floral, and Orchid Committees will assemble at 11 A.M., and the show will open to the public at 12.30 P.M. An interesting feature of the catalogue will be an article on the "Royal Horticultural Society" from the pen of the President, Sir Trevor Lawrence, Bart. P.S.—Owing to the great pressure upon the Society's officials, plants for certificate cannot be entered on the morning of the show.

— LONGFORD HALL CUCUMBER.—The raiser of this variety, Mr. Barkham, Longford Gardens, Isle of Wight, was doubtless much disappointed that his Cucumber samples of some forty-eight fruits, shown at the Drill Hall on the 11th inst., met with no recognition at the hands of the Fruit Committee, especially after the same variety had but a few days previously been at Ryde awarded a first-class certificate. Possibly Mr. Barkham was, because of that award, induced to take so many fruits to London on the 11th; but the samples, though apparently thought much of in the Isle of Wight, were, as shown at the Drill Hall, a long way below London mark. Really, they were of the kind seen plentifully enough some twenty to thirty years ago, but have a long time been displaced by other examples. Country societies may not know this, and therefore leap hastily to conclusions. That the variety is a good cropper there can be no doubt, but so also are many others that produce fruits greatly superior in appearance.—A. D.

— HORTICULTURAL CLUB.—The usual monthly dinner and conversazione took place on Tuesday last. The chair was occupied by Sir J. T. D. Llewelyn, M.P., and there was a good attendance of members. A paper was read by Mr. Geo. Paul on the subject of *Amaryllis*. He entered at some length into their history and method of cultivation. He questioned whether a mistake had not been made in endeavouring to get the broad form of flower instead of the long tubular form of *Lilium longiflorum*, and thought perhaps something might still be done in that direction. Their slowness of increase militated against their more general cultivation. An interesting discussion followed, in which many of the members present participated. Considerable surprise was evinced at the statement of the Secretary, that he had had the hybrids of *vittata* raised by the late M. Souchet growing and flowering in the open air for the last twelve months; they were planted in the same situation as *Amaryllis Belladonna*, in a border in front of the greenhouse facing south, and passed through the severe winters which we have had lately without injury. A cordial vote of thanks was proposed by Sir John Llewelyn to Mr. Paul for his valuable and interesting paper, and was carried with acclamation. We hope to give the paper in a future issue.

— THE VICTORIAN ERA FUND.—Mr. R. G. Waterman, Secretary and Treasurer of the Mutual Improvement Society, Woolton, Liverpool writes:—"The Committee of the Liverpool Horticultural Association has placed at the disposal of the Woolton Society space at the forthcoming Exhibition at Sefton Park, to be held on July 31st and August 2nd, for the purpose of arranging a stall for the sale of plants, fruits, and flowers in aid of the above Fund. Could not this suggestion be generally followed at horticultural exhibitions and Rose shows throughout the country? This would prove the means of adding materially to the Fund, at the same time adding to the pleasure of the visitors to flower shows, especially in the vicinity of large towns."

— THE ROYAL KEW FUMIGATING COMPOUND.—By the use of the above compound for destroying various kinds of insect pests on plants and trees, both labour and expense have been reduced to a minimum. The old-fashioned way of fumigating with tobacco paper two or three times in succession to destroy such insects as green fly or thrips, is now with me a thing of the past. There is no injury to foliage or delicate blooms, such as *Calceolarias*, or *Cinerarias*, or *Orchids*, and all may be kept perfectly clean after using the compound. I find on referring to past accounts for fumigating material the cost is less than half what it used to be. We are indebted to Messrs. Timothy and Sandwith of Bracknell for advertising this most valuable article, which I find does all that the proprietors claim for it.—F. J. THORNE, *Sunningdale Park*.

— SEEDLING VIOLAS.—Some time ago an article appeared in this paper advocating seedling *Violas* in preference to named varieties for hedding purposes, one of the principal reasons advanced in their favour being earliness to flower, and further that they would invariably come true from seed. Having grown *Violas* by the thousand, both named and seedlings, I doubted the assertion at the time, but preferred to wait the flowering of a large number of seedlings this season before carrying the question further. So far as my experience is concerned, my previous opinions are fully confirmed. A recent visit to the charming public gardens of Guildford Castle still further proves that seedlings cannot be relied upon to produce a good uniform display of colour. A large bed containing several hundred plants is in full flower near the entrance. From a distance the effect is undeniably charming, but on coming closer the pleasing appearance is very much marred. Plants of many different habits in growth, flowers of all forms and colours, such as would turn a florist away in disgust, and out of the entire bed there was only one plant which would pass as a decent bedding *Viola*. Is such a result desirable? and what a contrast a bed of one or two named forms, such as *Blue Gown*, *Sylvia*, *Ardwell Gem*, *Goldfinch*, or *White Duchess*, would present. In conclusion let me say a word of praise for the skilful and courteous superintendent, Mr. Saunders. The general neatness of the grounds and surpassing quality of other spring flowering plants at once dispel any doubts about cultural skill being wanting in the *Violas*. It is too evident that seedlings are not the best for his purpose.—M. BAXTER, *Woking*.

— THE CRYSTAL PALACE FRUIT SHOW.—That it should be needful for the Secretary of the Royal Horticultural Society to make so strong an appeal for subscriptions to the customary £100 guarantee towards this great Fruit Show is essentially painful, yet apparently it is unavoidable. The demands made on every hand this year for pecuniary help, the wholesale haggling and cadging that under the guise of long reign commemorations is being resorted to in every direction, is beyond all precedent, and is doing much to cut the throat of true charitable inclinations and objects. That fact, no doubt, renders the getting in of ordinary subscriptions to useful and legitimate objects exceedingly difficult, and in many cases impossible. In the case in question, whilst something is asked for the promotion of national fruit culture, surely a patriotic object, very much is offered to every subscriber in the shape of a splendid show, whilst to a large number there is the prospect of a good return being made in the form of tangible prizes. For this latter reason both previous and intending competitors should contribute something. Then the Fellows of the Society, some 3000 in number, all of whom can see the Show without charge, might contribute something, if but small sums. Very large numbers of these will turn up at the Temple Show. Why not put up in prominent places collecting boxes, labelled "Silver collection for the Crystal Palace Fruit Show Fund?" Possibly a good round sum may be obtained in that way. It is not every one who can give a guinea, but thousands might give shillings and half-crowns. The comparatively small balance left after meeting last year's expenses hardly justifies the Society in holding the Fruit Show minus the required pecuniary guarantee.—D.

— GARDENERS' ROYAL BENEVOLENT INSTITUTION. — We are requested to state that the fifty-eighth anniversary festival in aid of the funds of this Institution, will take place on Wednesday, May 26th, at 6.30 for 7 P.M. (the first day of the Temple Flower Show), at the "Hotel Metropole," under the presidency of the Rt. Hon. Lord Rothschild. As a large gathering is expected on the occasion, the Secretary, George J. Ingram, 50, Parliament Street, London, S.W., will be greatly obliged if those friends who desire to be present will intimate their intention to him as early as possible, so that the necessary arrangements may be made.

— FLORAL DECORATIONS AT CHELTENHAM. — During the recent visit of the Prince and Princess of Wales to Cheltenham the decorations at Messrs. Cypher's nursery were, as might be expected, very beautiful. On each side of the road a column had been erected in a very novel manner, at various stages of which towering Palms and foliage plants lent enchantment to the view, a splendid pair of *Phoenix rupicola* adorning the top of the columns. A basket of Orchids presented to the Princess of Wales was much admired. It contained some grand spikes of *Odontoglossums Alexandræ* and *cirrhosum*, also lovely sprays of *Oncidium obryzatum majus* and *Cypripediums Rothschildianum* and *grande*, and a few grand *Cattleya Mendeli* and *Lælia purpurata*, arranged with long sprays of *Asparagus*.

— JUBILEE FLOWER SHOWS. — I have no doubt because so early in the season there will be few flower shows held on June 23rd, but I observe with regret there will be two considerable ones near London—Richmond and the Crystal Palace. The former is held a few days earlier than usual, the last Wednesday in June being its ordinary fixture. The latter show is a special commemoration show. But great flower shows cannot be constituted by mere strokes of the pen, or the issue of schedules. They entail an enormous amount of work in the preparation of the material composing them, and in loading and carting. Now, it will be impossible for these two shows, both so needlessly held on the day following the Jubilee Bank Holiday, to be constituted without entailing upon a very large number of men in nursery and private gardens a hard day's work on the very day set apart for a national holiday, because of the Jubilee celebrations all over the kingdom. Why should not some consideration have been shown towards all these people? Why compel them to work when they would prefer to be taking part in holiday functions with the rest of the community? The arrangement seems to be a very selfish one. That because of the difficulty likely to arise in securing vans on the Jubilee Day, great obstacles will be placed in the way of carrying plants long distances, there can be no doubt. That is, however, a matter for those who organise shows and exhibitors. In many cases furnishing plants, of which so many groups are now composed, will be required in other directions, and Roses may be expected to be cut to the last flower for Jubilee decoration.—D.

— NEW CORN PRODUCT. — The discovery that the pith of the corn stalk can be used in the construction of war vessels is likely to be of benefit to agriculture in more than one way. The chief use of this pith is for a packing between the inner and outer shells of the vessel, so that when pierced by a projectile it will absorb water and swell so rapidly as to close the opening before the vessel leaks to a dangerous extent. Experiments with this pith have been so satisfactory, says the "Garden and Forest," that it has been adopted in the construction of American vessels of war, and European nations have commissions for investigating the same material, so that the use of corn pith will make a market for what was once a waste product. In the process of extracting this pith the blades and husks are removed, and the stalks are cut into small pieces. When the pith is taken out from this stalk, the remainder is ground up into a flour-like substance which resembles bran. Some experiments with this "new corn product," as it is called, have been made at the Maryland Station, with the remarkable result that it is found to contain 11 per cent. more of digestible matter and 2 per cent. more of digestible protein than the whole fodder does when shredded. It does not contain as much digestible albuminoides as Wheat bran, but it equals that food in the total amount of digestible matter. It keeps as well as bran or Cotton-seed meal. It is in such condition that it can be uniformly mixed with any ground grain, and when used as a base it is possible to make a complete and normal ration for stock in one bulk without the necessity of feeding grain and hay separately. Animals fed upon such a ration eat it with relish, and keep in normal condition. Since there is only 1 lb. of pith to 14 lbs. of blades, husk, and stalk, this new material amounts to a very considerable portion of the fodder.

— FLOWERS AT CHELSEA. — At all times of the year flowers are to be found in the famed nursery of Messrs. James Veitch & Sons, but at the present time the display is more than usually imposing. One large house is such a mass of floral beauty as is rarely seen—*Liliums*, *Azaleas*, *Heaths*, *Spiræa astilroides*, in fact almost all greenhouse flowers of the season contributing to the display. In another house is a rich floral feast of *Gloxinias*, and many new forms of *Streptocarpus* of an interesting and attractive character evoked admiration.

— READING COLLEGE. — The fourth supplement of the Journal of the University Extension College, Reading, has reached us from the Agricultural Director, Mr. D. A. Gilchrist, B.Sc. This report deals with the field experiments that have been carried out by the College in the counties of Berkshire, Dorsetshire, Hampshire, and Oxfordshire during 1896. Besides these there are articles on manures by Mr. Gilchrist, and a report on injurious insects by Mr. P. H. Foulkes. The book contains much matter that would prove interesting to cultivators of the soil, more especially farmers, and it may be obtained from the College for 6d.

— "THE COUNTRY GENTLEMEN'S CATALOGUE." — A copy of this book for 1897 has just reached us from the publishers, Messrs. Eden Fisher & Co., 32, Mitre Street, London, E.C. Including the advertisements the catalogue comprises upwards of 220 pages, and is clearly printed on good paper. Almost all departments of sport in which gentlemen take an interest are referred to more or less briefly, while notes relating to farming are plentiful. Chapters on manuring land, feeding, and dairying should afford valuable hints to soil cultivators, and the list of agricultural shows is complete. The price of the book, which is strongly bound in red covers, is 3s. 6d.

— PRUNUS DAVIDIANA. — The first tree with conspicuous blossoms to flower this year in the Arnold Arboretum was the North China Peach, *Prunus Davidiana*, which has been extraordinarily beautiful. This tree is perfectly hardy, but the flowers are often killed by frost after the buds begin to swell, and during the ten or twelve years that it has inhabited the Arboretum it has only once or twice before flowered as profusely as it has this spring, and although producing more or less flowers every season, it has not borne fruit yet in the Arboretum. According to a transatlantic contemporary *P. Davidiana* ought to be better known as an ornamental tree, as it flowers before any of its kind, and the pale pink petals, although not as large as those of some forms are exceedingly attractive. The culture presents no more difficulties than other *Prunus* more generally grown.

— MAPLEWOOD. — Maplewood has a distinct and positive value for flooring which no other hard wood which is workable possesses. Its hardness and smoothness give it power to endure the severest wear; it has a light and attractive colour, and it can be cleaned as easily as Maple. It has hitherto been abundant enough to meet the growing demand in every part of the continent and the requirements of the large export trade. Nevertheless, since only a part of the tree is utilised, the waste of the lumber is great, and the best hard Maple, which is found in the lower Michigan peninsula and in Wisconsin, is disappearing more rapidly than even the Pine did, because, as a rule, good Maple land is good farming land. The time seems to be coming when the supply will be depleted, and the "North-Western Lumberman" is, no doubt, right when it complains of the reckless competition under which this valuable product is sacrificed.

— WOOLLY APHIS. — Although I cannot tell your correspondent Mr. Hiam, page 388, why woolly aphis is called American blight, I can tell him something more useful—viz., what will kill it. In most old gardens a few gnarled treasures of Apple trees are to be met infested with woolly aphis (American blight). The owners prize these old stumps so much that it is considered little short of sacrilege to touch a twig of them. Such trees become nurseries for producing and distributing the pest. This state of matters can now, however, be remedied with the use of "Spidacide," a new product of exceptional merit, which every gardener and fruit grower should know. Last autumn we applied it with a syringe at the strength of half a pint to the gallon of tepid water to some trees then white with woolly aphis, with the result that every insect, so far as we could tell, was killed, and not a leaf injured. This efficacious insect eradicator cannot be too well known.—J. RIDDELL. [If this new product, recommended so highly by a practical man, is manufactured for sale, it can be made known in the usual manner by which other useful products have found their way into gardens all over the kingdom.]

— "MAKING MORE GARDENERS."—This heading to a paragraph in last week's issue doubtless conveyed to some readers' minds the impression that the writer thought there were too many gardeners made already. Really it does seem as if the vocation in relation to work was already greatly overdone; indeed, requests for assistance to secure situations become painfully frequent. But, farther, the paragraph itself naturally leads to wonder what sort of gardeners are likely to be turned out from the Royal Botanic Gardens. Possibly the youths finally selected for the L.C.C. Scholarships will think themselves fortunate, and if these Scholarships were to be worked out in some practical garden I could think so too. But the Botanic Gardens are partly of a botanical order and partly of a pleasure order. Young men may learn to grow plants in houses, and something of the orders, species, and parts of those inside and out; they can learn to mow and sweep, to weed and roll walks, to bed out, and generally keep pleasure grounds neat and tidy. But with regard to the far higher and more important work involved in fruit and vegetable culture in and outdoors, can they there learn anything? I fear the outcome of even three years of such training will be very disappointing. After all there is no place for a youth to learn gardening in like a good class private garden, where practically every department of gardening is exemplified. If after a few years in such a place he can get a couple of years in a nursery in departments, and a year in a good market-growing establishment, then he would have first-rate opportunities for gaining knowledge of the most useful kind.—A. D.

PLANTS IN HOUSE DECORATION.

THE grouping of plants in a miscellaneous manner, or even using one variety to form a group, seems to be inadmissible and out of character with artistic surroundings of saloons and reception rooms. But even to this rule there are exceptions, as the broad landings of a double staircase where each side might be flanked with plants with an appropriate edging; or perhaps the extreme end of a suite of reception rooms on a raised buffet, so that the lowest plants in front are not much below the line of vision. These groups should not be in any way formal, but light, graceful, and elegant; the buffet or cellarette ought to be hollow and lined with zinc, so that the water falls below, and to allow of it being emptied. No pots should be in sight, and fresh or artificial green moss must be used to cover naked surfaces. The front should be draped with trailing plants.

In these groups flowering plants possessing beauty of form ought to be arranged thinly enough to show their curvature and grace to advantage, and those distinguished for purity, intensity, and brilliance of colour in a mass, for if Nature pleases us with her forms she enchants us with her colours. These groups will perhaps be best confined to one variety of plant, excepting the drapery. If gradation of colour is attempted it must be as a reflection—a bright colour at the back leading to some simple shade in the front; but dominant harmony as shades of one colour must be avoided, contrasts and analogous harmonies being most pleasing.

By the latter term is meant relative hues, as shades of colour formed by the combinations of red and blue—as crimson, rose, and purple, or shades of red and yellow in combination—as scarlet, orange, and salmon. In the class of plants possessing beauty of form may be put Callas, Poinsettias, deciduous Calanthes (rising from greenery), Lilliums, Francoa ramosa, Gladiolus The Bride, and so on. Beauty of colour may be represented by Azalea indica (semi-double), Azalea mollis, and most hardy forced plants, and Zonal Pelargoniums. Jardinières on mantel-pieces in front of mirrors should be filled with plants of the very lightest elegance, Cyperus alternifolius, Celosias, Rivina humilis, Freesias, Roman Hyacinths, or Pilea muscosa. Mirrors in corners having shelves in front to hold vases are very pretty draped with Panicum.

But what adds to the artistic furnishing of the rooms are the plants that stand alone, conspicuous for their grace and beauty. These must always be faultless specimens, and the vases containing them should stand on pedestals, so as to raise them up within the line of sight, or above it. The tops of pianos are now mostly loaded with flowers, and beautiful flowering plants are sometimes used. The plants standing in window recesses, excepting Palms, should be flowering or bright hued foliage plants. Yellow is the colour for windows, as it is like transmitted sunlight. Yellow is also the colour for dark or badly lighted rooms.

The plants for boudoirs are mostly flowering ones of small size, and preferably sweet scented. From rooms in which the wall coverings, window hangings, and carpets are of green or sea green all blue shades must be excluded, and where the prevailing colour in the room is blue the purples, crimson, rose, and a great many other shades will have to be excluded.—F. STREET.

BIRMINGHAM NOTES.

A RECENT look in at that popular Midland horticultural resort—the Botanical Gardens, Edgbaston, disclosed several specimens worthy of note, as for instance a good display of *Spiraea arancus astilboides*, with its elegant, creamy-white coloured plumes of inflorescence. Attention was also drawn to another denizen of the greenhouse, *Streptosolen*

Jamesoni, erroneously formerly called *Browallia Jamesoni*, large plants covered with rich orange coloured short trumpet shaped blossoms; also in close association with the preceding was that uncommon hard-wooded plant, *Ochna multiflora*, with its small pendulous parti-coloured flowers. Not the least attractive was a display of several of the leading varieties of both "show" and fancy Auriculas, arranged around the centre stage in a cool house, whilst in a contiguous apartment a rich and large assortment of Gloxinias was noticed. Gratifying also was it to observe the flourishing condition of the occupants of the Palm and Tree Fern house, unfolding their attractive bright green fronds.

Apropos of Ferns, Mr. Latham ventures an assortment of Filmies, including *Hymenophyllum tunbridgense* and *Trichomanes radicans* growing in close association with one or two species of Todeas, all in a state of luxuriance. The comparatively few Orchids in flower at the time of my visit claim some little notice, especially with regard to a small plant of *Angraecum modestum*, with a fine single raceme of its pure white, chaste looking inflorescence. A healthy piece of *Cochlidia Noezliana* was represented by several spikes of its uncommon and attractive flowers, deep rosy coloured; whilst *Cattleya citrina*, *Cymbidium Lowianum*, *Phaius Wallichii*, *Coelogyne elata*, *Masdevallia chimera* var. *Wallisi*, *Cypripedium barbatum*, *C. Lawrenceanum*, *Dendrobium thyrsiflorum*, *D. infundibulum*; *Odontoglossums Pescatorei*, *cirrhosum*, *Rossi majus*, and *crispum* were also conspicuous. These were supplemented by large specimens of the gaudy *Anthurium Scherzerianum*, which does not fail to attract the most unobservant of visitors.

In the outdoor department, where order and neatness, as usual, prevail, unfolding vegetation proved attractive, including the developing inflorescence of the denizens of the alpine rockery garden, though owing to the recent prevailing abnormally cold weather these charming heralds of the summer have been somewhat retarded. We may observe, in conclusion, that Mr. Latham evidently purposes promoting an increase of that hardy evergreen Bamboo, *Arundinaria metake*, by reason of its persistent evergreen and elegant foliage, affording such a pleasing relief, especially during the winter months, to the surrounding deciduous trees and shrubs. Surely an extended recognition and cultivation of these elegant hardy exotics is most desirable in this country for the embellishment of our shrubberies.—W. G.

THE SCHOOL GARDEN.

CONTINUING my remarks from page 384 on the subject, it may be well to point out that the District Councils are empowered to provide allotments for farm labourers, and doubtless also for land intended for school gardens. Then with regard to the Education Code, "Elementary Agriculture" and "Plant Life" are both named on the schedule of class subjects, and when, according to H.M.'s Inspector, they are successfully taught in accordance with the regulations, a sum of 2s. per head is allowed on the average attendance.

By the term "school garden" is not meant merely a small plot for flowers adjacent to the school premises, though even such a provision would form an interesting and useful adjunct to the country school. My idea of a school garden is that every school in a rural district should have, as conveniently accessible as possible, a piece of land large enough for the purpose. The area, of course, would not only depend upon the extent at disposal, but upon the staple and quality of the soil, and upon the physical ability, intelligence, and industry of the young tenant. The boys of standards IV., V., VI., only should be eligible as tenants, but the lower standards ought to have access to the gardens under proper supervision, for the purpose of object lessons and watching the process of the work of the older boys. Each plot should be cultivated by the tenant holding it, under the guidance of the teacher, whether the school-master or a neighbouring gardener called in at stated times to assist for a few hours weekly in directing the work.

It appears to me to be essential to success that the land and the implements employed in its cultivation should be furnished free of expense by the managers, and that no charge should be made any more than for the use of the schoolroom, books, pens, and paper in ordinary teaching. They should be regarded as an outdoor class-room. The time employed in the garden should be at least three half-hours weekly, another three half-hours being spent on lessons and book work on the subject indoors. Each boy should be required to keep a logbook, which should contain entries of cultural operations, digging, sowing, planting, hoeing, watering, and gathering crops. Careful accounts should be kept of the smallest item of expenditure, the time spent on the garden and the kind of occupation, the money expended on seeds, plants, or manure, parts of crops taken away for use at home put on the creditor side at market value. In one set of school gardens boys of eleven years have been known to make a profit of 12s. in a year on a plot of six poles.

A small amount of space might be devoted to flowers. It is needless to enlarge upon the advantages accruing from such a delightful recreation. It may be well, however, to take note of the fact that the sale of flowers and roots is now a large and increasing trade. Flowers, which half a century ago were regarded as a luxury, are now an apparent necessity. Moreover, the encouragement of flower gardening among cottagers' children, apart from its refining influences, is not infrequently a welcome addition to the family income.

A plot of eight or ten poles in extent might advisedly be set apart for a trial or experimental garden, in which the quality of seeds and manures might be tested with different modes of cultivation, as it must not be forgotten that the majority of the sons of small farmers receive their only education at the village school.—HERGA.



ROSE SHOW FIXTURES FOR 1897.

- June 7th (Monday).—Cambridge.
 „ 9th (Wednesday).—Chelmsford.
 „ 15th (Tuesday).—Ryde.
 „ 16th (Wednesday).—York.†
 „ 18th (Friday).—Portsmouth (N.R.S.).
 „ 23rd (Wednesday).—Richmond, Surrey.
 „ 24th (Thursday).—Colchester.
 „ 25th (Friday).—Maidstone.
 „ 26th (Saturday).—Windsor and Dorking.
 „ 29th (Tuesday).—Canterbury, Hereford, Sntton, and Westminster (R.H.S.).
 „ 30th (Wednesday).—Croydon, Ealing, Farnham, and Reading.
 July 2nd (Friday).—Crystal Palace (N.R.S.).
 „ 7th (Wednesday).—Glasgow, Hanley,* Hitchin, Reigate, Leeds,† and Tunbridge Wells
 „ 8th (Thursday).—Bath, Gloucester, Harrow, Newcastle-on-Tyne,† and Woodbridge.
 „ 13th (Tuesday).—Wolverhampton.†
 „ 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 „ 17th (Saturday).—New Brighton.
 „ 22nd (Thursday).—Halifax and Trentham.
 „ 27th (Tuesday).—Tibshelf.
 „ 28th (Wednesday).—Chester.*
 „ 31st (Saturday).—Liverpool.*

* A show lasting two days. † Shows lasting three days.

The above are the only dates that have as yet reached me. I shall be glad to insert in the next list any further fixtures that may be sent me, whether of Rose shows or of horticultural exhibitions where Roses form a leading feature.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

COMMENTS AND IMPRESSIONS.

DURING the twenty years that the *Journal* has furnished me with abundant instruction and entertainment week by week, the Rose pages have always been eagerly and closely read, greatly to my advantage in the early struggles to overcome difficulties connected with successful culture. Rarely have I contributed my experiences, however, probably from a consciousness that it is not easy to write anything fresh upon a subject which has been so ably and fully treated by the veterans of the Rose world. Still the *Journal* writers seem to be united in such a close brotherhood, and the Editor so frequently encourages his readers to add to the common store, that it becomes almost a duty to help, with the hope that such hints as may be given will assist someone starting on the "thorny" path. That is one of my objects, but I may now and then take a step in advance; and if this first letter pass safely through the preliminary ordeal and reach the world of readers, as is hoped it may, I shall feel emboldened to try the experiment again.

Some time since I was talking with a friend of horticultural proclivities who has courted the favour of many flowers, each of which has possessed his mind with the greatest enthusiasm in turn, and he confessed very earnestly that, notwithstanding his seeming fickleness, his true love is the Rose. Solemn vows were made, too, that he would prove his loyalty to the queen of flowers by again entering the fateful arena of show competition. There are many flower lovers like my friend, whose hearts are large and whose admiration for Nature's most charming productions is unbounded, and yet there is some one flower which has the chief place and retains it against all others. With regard to the Rose, the great and enduring quality is that its charms are ever fresh; it is like a valued friend whose depth of character we have fathomed, and whose merits have been proved. Even though it possesses some of the characteristics of the gentler sex in regard to the fact that it is "uncertain, coy, and hard to please," yet we reap ample reward for devotion in our fair queen's smiles when we watch the exquisite beauties of the developing flowers.

Perhaps these thoughts have been suggested by a morning inspection of my Roses, which has brought to mind the working and watching of many years, their attendant disappointments or happy realisation of wishes. It brought back memories, too, of the early days when, after initiation into the mysteries of budding, I watched with pride the development of the buds which had "taken." Since then I have budded, grown, and studied many thousands of Roses; but it is questionable if keener pleasure has been derived from any than was afforded by these first exploits.

The satisfaction of being able to cut bountiful baskets of delicious blooms for home use or friends is indeed great; so, too, the rosarian's heart warms at the sight of the "first prize" secured to a stand of flowers at a show. But the memories of early floral triumphs, young though they were, are more lasting, because the impressions were made when the mind was more plastic and experience restricted. It is the same in many other things, for I remember on one occasion having a

most entertaining conversation with the late Dr. Hogg on a similar subject, and he related with much gusto the following anecdote:—In preparing one of the earlier editions of the "Fruit Manual" for the press he found that he had not included in it an Apple which was well known to him in Scotland, and remembered from his boyhood's days as possessing an exquisite flavour. Diligent search amongst the fruit collections in the South failed to reveal this wonderful variety, and the Doctor undertook a journey over the border mainly with a view to its rediscovery. It was indeed found. "But," said he, in concluding his story, "never was I more disappointed in my life, for the Apple proved to be a flavourless, useless variety, greatly inferior to hundreds known to my later years."

Much the same might prove to be the case with regard to the Roses and other flowers of early youth, difficult though it seems to realise. Certainly my memories of the Roses which adorned the country garden in my boyhood's home represent them as superior in most respects to any I have been able to grow since. Arbours and arches were draped and festooned with profusely flowered and varied climbing and trailing Roses, while the Roses in beds cut in the grass appear to have been so rich in colours and fragrance, and to have afforded so long a succession of handsome flowers, that my best efforts have never enabled me to reproduce. One of the old favourites, however, may be cited as an exception, the good old Général Jacqueminot, for this at least is fully up to memory's standard, and is even now one of our most valued Roses of its class and colour—speaking from a garden rather than an exhibition point of view, though blooms are still seen in leading stands. Another which I remember well as especially handsome was Cramoie Superieure, but though I have had a variety under this name several times it has never seemed to approach that in my mind. Some of these old Roses are delightful garden plants, and without attempting to classify them we may set down as examples of those for beds the old China, Fellenberg, and Aimée Vibert, while as climbers there are numbers which are most floriferous. It is after all as a garden plant that the Rose must have the greatest number of admirers, and while fully recognising the interest and help derivable from the shows it is yet in the garden, however pretentious or humble it may be, that we secure the greatest pleasure from our favourites.

Occasionally if the Editor deem my contribution of sufficient value, I shall hope to refer to some of these old Roses more particularly, to state my experiences and observations with the more recent varieties, to comment freely on Rose gardens and exhibitions, and to give such cultural hints from time to time as may be seasonable and of general interest. As this is only a preliminary letter which has extended somewhat beyond its intended limit, I can only now say that a cultural topic to which my first notes will be devoted is respecting the use of artificial manures as partial or entire substitutes for stable or farmyard manure. Here I shall probably be disturbing the Rose growing traditions of many, but what I have to record is simply the result of my own experience, and must therefore be taken on that basis. It had long been my belief that in some soils a large amount of stable manure was not merely unnecessary for Roses, but positively hurtful to certain varieties, and I determined to endeavour to ascertain how far some of the simpler chemical manures could be employed with advantage as substitutes, while obtaining the required vigour of growth, substance of bloom, and clearness of colours. Though there is much more to investigate some interesting results have been observed, and are at least suggestive.—MIDLAND ROSARIAN.

[The insertion of these notes is the best evidence of their acceptability, and our correspondent can, if he can find time, contribute much that is interesting, suggestive, and useful pertaining to the Rose.]

CONSERVATORY MANAGEMENT.

SUPPLEMENTARY to my notes in the issue of April 1st, page 280, I send the following account, together with a photograph of the conservatory at Walton Lea. The house is 40 feet long by 25 feet wide. At the west end, or that which is represented as most distant in the picture, is a fine specimen Camellia of the alba plena variety, with smaller plants on each side of it of Donckelaari. Borders about 4 feet wide run along each side of the house, in which the climbers are planted, and on which plants are also arranged.

On the centre floor are arranged three groups similar to the one seen in the foreground of the picture. At the time of photographing the house was furnished chiefly with Azaleas, Dautzia gracilis, and other miscellaneous plants. Of the former the following are among the varieties grown:—Duc de Nassau (of which there are several fine pyramidal plants 7 feet high and 4 feet through), Souvenir de Prince Albert, Stella, Model, Baronne de Vriere, Duc de Brahan, Mdle. Marie Planchon, B. S. Williams, Dr. de Mill, Bernhard Andreas alba, Apollo, Sigismund Rucker, Balsaminiflora, Madame Van der Cruyssen, and others.

It may interest the readers of the *Journal* to know that this house, as well as the other plant and fruit houses, are open to the public of the neighbouring town of Warrington twice each year (two days on each occasion)—in the spring for the purpose of viewing the Azaleas or Camellias, in the autumn for seeing the Chrysanthemums respectively. On these occasions visitors to the number of several thousands attend the gardens. Special arrangements are made to facilitate their passage through the houses and grounds. These show days are looked forward to with great interest, and the privilege accorded is highly appreciated.—P. W.

INSECT INVASION.

I AM struck (neither dumb nor unable to write, thank God) by a few words in "W.'s" reply to the "distressed correspondent" suffering, as who does not at this season, from insect invasion. The lines are these:—"A shilling spent in insecticides early in the season, and the powder or solution applied when the first insect is seen, or, what is better, *before as a preventive* (the italics are mine), will effect the purpose far better than can be accomplished by an expenditure of 20s. after the shoots are crowded with aphides."

The distressed correspondent does not state what insect. Of course, he or she ought to know that eggs laid in the autumn, as the sun in April and May warms them, hatch, and the influx begins. This time, as "W." rightly says, is the time for action, "or before." Now supposing then the pest to be aphides, what can we do *before*? Cleanliness everywhere is a help, but in greenhouses it is not a time of year when you

without examining *why* it is so; the enemy will not be found in nine cases out of ten on the upper surface of the leaf, but underneath. This fact is one of the difficulties in applying liquid insecticides—it does not reach the enemy.

In the house the presence of a few aphides should be the signal for immediate fumigation. Personally, I have found nothing to equal the XL liquid for vapourising. I have no interest in recommending it, other than to assist "distressed correspondents" in repelling the attacks of the aphids tribe, but if the directions are strictly followed nothing, in my hands, has been so safe, so effective, and so lasting as this. Lately a friend came to my house, to whose gardener I had given some plants, and the latter, remarking on the cleanliness of my Cinerarias, complimented me. I gave the credit to the XL, where indeed it was due. "Oh!" he replied, "the master will not use it, it is so awfully expensive." So to the master I asked why he did not use it, and his reply was that his last gardener used a 13s. bottleful for one house! This, I



FIG. 88.—CONSERVATORY AT WALION LEA.

can turn out your plants and scrub and clean, but this might be done later in the autumn. Will that rid us of green, brown, blue, and black aphides? I trow not. What are the eggs of the aphids like? I, to my knowledge, have never seen any, and it strikes me they must be very minute; but after all, as far as the aphids is concerned, were it only by eggs hatching that these pests arrived, they would be fewer by myriads than they are now. Like the poor, the aphids in its varied forms "we have always with us." It is the rapid increase that the female aphids after hatching is capable of by that process of disbudding from itself perfect females, equal in a few days to the same process or function, that covers our plants so speedily, and that permits according to the naturalist Reaumur, who watched them so attentively, the female to be the great great grandmother of these myriads during her own lifetime. The process is continually going on, and it alone accounts for the rapidity with which a shoot that has a female on it to-day, may in a few days be literally swarming. The verdict is—do not spare the first you see, eye, and look for them. Never see a curled or crumpled leaf

am quite certain was not following the directions. Can it have any effect on the eggs? Being an ignoramus, I hazard this question. From the lasting effect of this compound I am tending towards the possibility of this; if so, it is an additional reason for using it, for we then come to an application of a remedy before the pest appears, which is a great desideratum, and the point which struck me in "W.'s" remarks. I expressed this opinion to a gardener to whom I had lent the apparatus, and he replied, "Well, I must say that our house has never been so free of aphides as since I used it."

But when we leave the house and come to the open, the enemy is much more difficult to conquer. We cannot use XL. The old saying is, that "the master's eye is worth two pair of hands." Both eyes are needed to see the first visitor of this legion of persistent enemies. Any curled or crumpled leaf on Peach, Pear, Plum, or Apple, or in fact any tree, is a warning. Pick it off and open it, and possibly a family of them will reward the search. I syringe my Peach trees daily, in the morning. I fancy it a help, but when the leaf is curled up I doubt

much reaching the enemy; but it often brings down the crumpled leaf, already weakened by the attack of its foes, and these leaves should be picked up and carried to the fire. At the same time I pick off every blistered leaf, and let them share the benefit of the great destroyer—fire. I doubt sometimes by the appearance of these leaves that there are spores that may spread the trouble. A diseased leaf is no help to the tree, but both a dis-sight and a spreader of mischief. Shoots that are covered with aphides may be bent down and shaken in quassia or tobacco water, or powdered with the powdered tobacco; but out of doors the watch must be incessant and the remedy prompt.

Then how many ignorant persons fond of their garden kill their best friends. The tits are very fond of aphides, and though I cannot say much for the sparrow, I have seen him dining off aphides, or else my eyes deceived me; but few know by sight their insect friends who live on the aphids. The ladybird is well known in its mature state, but possibly only when red, but the black-and-yellow small varieties are equally useful. But if in the beetle stage it is recognised, how many persons know it in its larva state when it is most useful? Then it somewhat resembles, except that it has six legs, a tiny lizard with a short, thick, dumpy tail instead of a long one. Perhaps in the pupa or chrysalis state, as it does not move, and looks only a black spot, it escapes detection, and so is saved, but if seen I fear is often squeezed and put out of the way.

The larva of the lace-winged fly, the lion of the aphid tribe, is generally sharp enough to save himself and drop out of the leaf, and then these, alas! are not very common; whilst the larvæ or grubs of the syrphus flies, which would nearly clear a twig in a night of the aphid host, pays the penalty of being like a green grub, and is often ruthlessly destroyed by the ignorant as a good deed! Had I as many of these friends as I wanted, all other insecticides as far as regards the aphid I could dispense with; they do their work expeditiously and perfectly. To the uninitiated I can only say that if they see in the neighbourhood of aphides a grub which, when it moves, has a pointed head, it is probably one of these, and worth to the gardener its weight in silver, I think in gold.

The Cherry aphid is black. Tackle it early or the ends of the growing shoots will be as black as soot, and soon the stems of the young fruit will be black also; if then the remedy is not quickly and effectually applied the crop will be ruined.—Y. B. A. Z.

STRAWBERRIES AT KNOWSLEY HALL.

THE forcing of Strawberries is carried out in the majority of large gardens with the best possible results, but I can safely say that nowhere have I seen better than those at Knowsley, where Mr. Doe, Lord Derby's gardener, has a show worthy of the highest possible commendation. Last season they were more than fine, but I was little prepared to see the great advance made this year. One shelf, with 200 plants in 6-inch pots, each carrying from nine to a dozen fruits just ripening, was a picture, and on all sides plants in various stages were to be seen. The greatest treat, however, was left until the last, when I was taken into a three-quarter span-roofed house containing four rows of plants on the front stage and three rows on the back. The leaves were of a deep glossy green, and the fruit large, many weighing 3 ozs. each, and of an intense scarlet. In all there were 300 plants, each carrying about nine large fruits, and all thoroughly ripe.

Apart from their usefulness the house presented such a charming appearance as to baffle description, and it would have been idle to suppose that such results could have been obtained without the aid of judicious thinning of the fruits and careful feeding with artificial manure. Another important matter must be kept in view—viz., the superiority of the newer varieties, as it would be utterly impossible to get such a weight of fruit from the older sorts. The variety I have tried to describe is Royal Sovereign, of which more than 2500 out of 4000 have been grown. Mr. Doe informed me that he could not think of growing La Grosse Sucrée again, and he intended growing 3000 of the former this year, relying on Monarch and Leader, as he is now doing, for the later crops.

That the preparation of the young plants is of the greatest importance goes without saying, and Mr. Doe is no believer in waiting for runners until the fruit is on the plants, and the difficulty increased tenfold. He is already prepared with plants from last year's runners, laid in beds, 6 inches between the rows. These lift with capital roots, and are at once transferred into their fruiting pots. Where sufficient runners could not be had other plants are growing in convenient situations for the early supply, the saving of labour alone being very great. In concluding I can only say that Mr. Doe's system is worthy of emulation, being sound and practical, and the results of the greatest excellence, not only creditable to himself but satisfactory to the noble family he serves so well.

Although only spending a few minutes at Knowsley I managed to get a peep into the handsome new conservatory recently erected. The painters were taking possession, but a small half-circular bed attracted my notice. In the centre stood an old *Cycas revoluta* with not an inviting stem, and to clothe this Mr. Doe had a *Clerodendron Balfourianum* planted and loosely twined round. As the *Cycas* was resting the shoots had been allowed to ramble at their will into the centre of the plant, the beautiful white and scarlet bracts looking delightful against the dark green leaves of the *Cycas*. It was all so natural that I could not refrain from noticing it. The remainder of the bed was filled with small dwarf *Ixoras*, which in their turn command much admiration.—R. P. R.



WEST OF ENGLAND CHRYSANTHEMUM SOCIETY.

THE schedule of this Society, which will this year hold its annual show in the Guildhall, Plymouth, on Tuesday and Wednesday, Nov. 2nd and 3rd, is divided into five divisions, besides which there are several special prizes. The principal class is for forty-eight Japanese blooms in twenty-four distinct varieties, the prizes being respectively £10, £7, £4, and £2. For a group of Chrysanthemums, interspersed with foliage plants, the sum of £21 is offered. The former class is open, while the latter is confined to the counties of Devon and Cornwall. Besides these there are many others devoted to the autumn favourite, besides several for fruits and vegetables. The Hon. Secretary is Mr. Chas. Wilson, 4, North Hill, Plymouth, to whom all applications for particulars should be addressed.

BAMBOO CANES AND EARWIGS.

I QUITE agree with "J. C.," page 362, as to bamboo canes being a harbour for earwigs. These pests, as is well known, are the worst enemies we have to contend with on Chrysanthemums. Last year they caused me endless trouble. They damaged every bud I had on two special plants of Madame Carnot, although a watch was kept for the marauders late at night and early in the morning. They seem to heartily appreciate the beautiful variety named.

I like to buy bamboos in four sizes—6 feet, 5 feet, 4 feet, and 3 feet lengths, thus saving time and waste in cutting large canes. The first wet day after receiving them I have them plugged with rather stiff "putty," and well painted green within 4 or 5 inches of the bottom, according to size. If this is done some three or four months before wanted they get well set and hard. The canes should be pointed also at this period, and then all will be ready for use at a time when little of it can be spared.

I owe my earwig trouble of last season to Nut trees being rather too near, as I found they were full of pests. I at once moved them clean away from the spot, and little bother they gave me afterwards, so getting anywhere near Nuts must be shunned to the utmost.—R. BASSIL, Pangbourne.

SHEFFIELD CHRYSANTHEMUM SOCIETY.

THE monthly meeting was held in the Society's rooms on Wednesday, the 12th inst. After the minutes of the previous meeting had been passed, the Secretary, Mr. W. Housley, read a letter from the Decoration Committee thanking the Society for their offer to decorate an arch on the occasion of Her Majesty's visit to Sheffield on the 21st inst., which they regretted they could not accept on account of previous arrangements whereby all the arches had been allotted to the Committees of the various sections of the route to be taken by the Queen. They would, however, be glad if the Society would decorate the Vestry Hall on the following day, the 22nd, in which the Mayor, His Grace the Duke of Norfolk, will entertain the aged poor. The invitation to undertake the decoration was unanimously accepted.

The monthly exhibits were herbaceous Calceolarias for professional members, and some excellent specimens were exhibited. The prizes were awarded to Mr. T. Garbry, first; Mr. Thos. Morton, second; and Mr. C. Shorten, third. The amateur members competed with three cut blooms, amongst them being some good spikes of Orchids, Amaryllis, Philo-cactus, and Roses. Mr. G. Walker obtained first, Mr. W. Willgoose second, and Mr. M. H. Willford third prizes.

The essay on the "Cultivation of the Dahlia" was then read by Mr. W. Willgoose. On a previous occasion the essayist, who read a paper on the storage of the tubers in winter, commenced his second part of the subject by beginning with the storing of the roots, taking off cuttings, and his method of growing the plants until ready for planting in the open ground. He also explained his method of preparing the beds, planting, growing training, and protecting the flower buds, fully explaining every process. The essay was a very instructive and exhaustive one, and left few questions to be asked. A good discussion followed, and the essayist was accorded the usual vote of thanks. Mr. Willgoose exhibited some good photos of his collection of Dahlias, taken last season when in bloom, also photos of a plant before and after thinning out the laterals. Mr. John Haigh occupied the chair.

PINE APPLE JUICE.—Some time ago a medical scientist noted that Pine Apple juice contained a proteid-digesting substance. No careful study of this fact was, however, made by him. Recently, another investigator has gone into the matter fully, and announces facts which are likely to give to the succulent Pine Apple a prominent place in dietetics. Pine Apple juice is an acid fluid of specific gravity of 1.043. An ordinary Pine Apple yields 600 to 800 cubic centimetres of it. The proteid-digesting power is quite remarkable in its intensity. Three ounces of the juice will dissolve ten or fifteen grains of dried albumin in four hours. The action takes place in acid, neutral, or even alkaline media, thus resembling trypsin more than pepsin. It acts best in neutral solutions.—("Science Siftings.")

BRIEF NOTES ON ALPINE FLOWERS.

(Continued from page 320.)

IONOPSISIDIUM ACAULE.

PURSUING my intention of drawing attention from time to time to some of the dwarf annuals adapted for the decoration of the rock garden I now seek to say a few words in favour of this little Violet Cress or "Diamond Flower," as our cousins across the Atlantic have named it. It is not a new flower, having been cultivated for many years. It came originally from Portugal, but has never found its way very widely into cultivation, although cheap and easily obtained from seedsmen. It is best treated as a hardy annual, and sown very thinly in the place where it is wanted to bloom.

Unlike many annuals it rather prefers a shady and somewhat moist position, such as may be found at the base of the northern or eastern sides of many rockeries. In such a place this little plant, growing only an inch or so high, with its fresh little green leaves and its tiny, but bright, violet flowers, is certainly a very attractive object. Not the least of its merits is the way in which its blooming is prolonged, not only far into autumn, but even into winter. The soil should be a little stirred before sowing, but deep loosening is not required, which is an advantage, as this little Violet Cress is often useful to occupy the space left bare by the decay of the leaves of shallow planted spring-flowering bulbs which it is undesirable to disturb. After sowing a sprinkling of soil ought to be put over the seeds.

SCHIZOCODON SOLDANELLOIDES.

This undoubtedly valuable acquisition to the number of our rock garden plants has been a remarkably long time in finding its way into catalogues. It was, as the description attached to the excellent figure in the Journal of April 15th (page 323) says, introduced from Japan in 1891, and surely long enough time has elapsed to permit of its finding its way in quantity to our alpine nurseries. It is offered at a low rate by Japanese nurseries, and, even allowing for a considerable loss in transportation from the land of the Cherry blossom and Chrysanthemum, ought to be had at a moderate price here.

I have been indebted to a reader of the Journal—Mr. A. K. Bulley of West Kirby—for a plant. Mr. Bulley is most indefatigable in his search for new plants, and one is safe in predicting that in a short time he will have one of the best collections of rare hardy flowers to be found in England. I do not know that anyone can yet say with confidence what treatment will best suit this exquisite little plant in any particular garden, but am inclined to think that a half-shady position in peat soil will be found answerable. The small, pretty leaves, so well shown in the engraving, are of a deep, yet bright, red colour. The flowers shown in the woodcut will prove to those who know the Soldanella how aptly this little Schizocodon has received the specific name of soldanelloides = Soldanella-like.

IRIS CRISTATA.

As I suspected, this exquisite little North American Iris needs to be a little better known to the Journal readers. My attempt to elicit a discussion upon its cultural needs, as first made in the opening article of this series of "Brief Notes on Alpine Flowers," has been a failure. As I remarked then, I have something to say on the subject, and, seeing that no one else has favoured us with their views, I must perforce lead off myself.

It is needless to disguise the fact that most of those who plant *Iris cristata* lose it at the first trial. This is a little discouraging, but is not surprising when we think of the small morsels which generally form these first plantings. Another obstacle in the way of early success is the common practice of covering with earth the rhizomes or rootstocks from which the true roots proceed. These should be on the surface of the soil, and not beneath it. I venture to assert that it is cheaper in the long run to pay a little more for a plant with several rootstocks, and that, if this is done and the Iris planted as recommended, there need be few losses.

Then as to the position, I am satisfied that one with a good exposure to the sun is the best which can be had. With such *I. cristata* will flower more freely and prove hardier than if even partly shaded. I grow it on a level terrace of a rockery, where it rambles about, seemingly delighted to place its rootstocks in contact with the stones. It is not, however, necessary to grow it on a rockery, as in many gardens, if once established, it will do well on the border. In the hardy plant nursery of Mr. Thomas Smith at Newry, Ireland, this Iris, planted as an edging to one of the borders grows with a luxuriance I have never seen surpassed. The edging is many yards long and one or more across, and when in full bloom must be of exquisite beauty. Another instance which has come under my observation is to be seen in the garden of a flower-loving friend of mine to whom I gave some rhizomes to replace a small plant he had lost in a border. For some months it made little headway, but at length began to grow vigorously. It is now a clump a few feet across. With regard to soil, generally speaking, I think it prefers a rather dryish soil in our climate.

An Italian firm recommends in its catalogue that *I. cristata* should have a "wet soil and moss cover," but of course the climate of the neighbourhood of Naples and that of the British Isles are quite different, and what may be needed in Italy may be injurious here. Although a dryish soil is, I think, preferable, it is not absolutely necessary, and once the initial difficulties of establishing this exquisite little flower are overcome, there will be little trouble with it afterwards. Once established, and when it has come into flower in May, everyone will be delighted

with its delightfully coloured lilac flowers, with the characteristic crest, whence the plant derives its specific name. It is only a few inches high, and the light green leaves harmonise perfectly with the delicate colouring of the flowers. I should recommend April, or, at least, early summer, planting so that it may become established before winter sets in.—ALPINUS.

(To be continued.)

ROYAL NATIONAL TULIP SOCIETY (SOUTHERN SECTION).—May 12TH AND 13TH.

THIS Society held its fourth annual exhibition at the Gardens of the Royal Botanic Society, in Regent's Park, London, on Tuesday and Wednesday, May 12th and 13th. Owing to the lateness of the season, and the frosts and hailstorms of April, the flowers shown were inferior, both in numbers and quality, to those shown last year. Several prominent exhibitors, among whom may be named the Rev. F. D. Horner, Messrs. Haynes, Thurstan, and Edom, being unable to be present. Two new exhibitors, Messrs. A. D. Hall and H. E. Greef, made creditable first appearances. Notwithstanding all drawbacks, there were some really fine flowers shown, Mr. C. W. Needham's twelve lacking nothing but another week's growth to equal any stand shown at the National for many years. Mr. Bentley's stand, which came second, was not nearly so good, his flamed bybloemens being weak. Mr. Chater's twelve contained some good flowers, but so young that they would not open. There was a better competition in class B, the first two sizes being very near together. Messrs. Hall and Greef had good stands in class C. There was an extra good competition in class D, for three feathered flowers. Mr. Bentley was easily first. In class E, for three flamed flowers, superior growth gave Mr. Hall supremacy over his northern rivals. In class K Mr. Bentley made a most meritorious exhibit. To stage ninety blooms in thirty varieties is no light task this season. Messrs. Barr worthily earned the gold medal of the Society with their comprehensive exhibit, and Messrs. Veitch showed some interesting and remarkable instances of what a Tulip could be when it forsakes the narrow road of rectitude marked out by the Tulip Society.

The best feathered flowers were Trip to Stockport, Mrs. Lea, Heroine, Masterpiece, Wm. Wilson, and Wm. Annibal; Sir J. Paxton, and Sam Barlow, Annie M'Gregor, Mabel, Sarah Headly, and Talisman were fine flames. Breeders were poor, being nearly all damaged by frost and hail.

Class A.—Twelve dissimilar rectified Tulips, two of each class.—First, Mr. C. W. Needham, Royton, near Manchester, with Sir J. Paxton and Sam Barlow (flamed bizarres), Masterpiece and Storer's Seedling (feathered bizarres), Talisman and Chancellor (flamed bybs.), Trip to Stockport and Adonis (feathered bybs.), Mabel and Annie M'Gregor (flamed roses). Mrs. Lea and Julia Farnese (feathered roses). Second, Mr. J. W. Bentley, Middleton, near Manchester, with Sam Barlow and Masterpiece (flamed bizarres), Magnum Bonum and Sir J. Paxton (feathered bizarres), Violet Sovereign and Chancellor (flamed bybs.), Chellaston Beauty and Mrs. Cooper (feathered bybs.), Rose Celestial and Mabel (flamed roses). Heroine and Comte de Vergennes (feathered roses). Third, Mr. A. Chater, Cambridge, with Sir J. Paxton and R. Headley (flamed bizarres), Sir J. Paxton and George Hayward (feathered bizarres), Duchess of Sutherland and Mrs. Jackson (flamed bybs.), Black Prince and Mrs. Jackson (feathered bybs.), Sarah Headly and Glory of Stapleford (feathered roses), Mabel and Sarah Headly (flamed roses).

Class B.—Six dissimilar rectified Tulips, one of each class.—First, Mr. Needham, with Sir J. Paxton and Hepworth's Seedling (bizarres), Talisman and Trip to Stockport (bybs.), Annie M'Gregor, and Mabel (roses). Second, Mr. Bentley, with Sam Barlow and Royal Sovereign (bizarres), Annie M'Gregor and Mabel (roses), Talisman and Elizabeth Pegg (bybs.). Third, Mr. Chater, with Dr. Hutcheon and Richard Headly (bizarres), Mrs. Jackson and Black Prince (bybs.), Mabel and Sarah Headly (roses).

Class C.—Six dissimilar rectified Tulips, for new growers.—First, Mr. A. D. Hall, Wye, Kent, with Sir J. Paxton and Wm. Annibal (bizarres), Adonis (feathered and flamed bybs.), Mabel and Madame St. Arnaud (roses). Second, Mr. H. E. Greef, Cambridge, with Sir J. Paxton, and Sophy Chater (bizarres), Mabel and Modesty (roses), Talisman and Bessie (bybs.).

Class D.—Three feathered Tulips.—First, Mr. Bentley, with Wm. Annibal, Adonis, and Mrs. Lea. Second, Mr. Needham, with Masterpiece, Adonis, and Modesty. Third, Mr. Hall, with Masterpiece, Mrs. Rathmeal, and Julia Farnese. Fourth, Mr. Chater, with Sir J. Paxton, John Linton, and S. Headley.

Class E.—Three flamed Tulips.—First, Mr. Hall, with Dr. Hardy, Annie M'Gregor, and King of the Universe. Second, Mr. Bentley, with Sir J. Paxton, Sarah Headly, and Duchess of Sutherland. Third, Mr. Needham, with Sir J. Paxton, Adonis, and Mabel. Fourth, Mr. Chater, with Sir J. Paxton, S. Headly, and Mrs. Jackson. Fifth, Mr. Greef, with Albert, Aglaia, and Duchess of Sutherland.

Class F.—Six dissimilar breeders.—First, Mr. Needham, with Storer's Seedling and R. Sales (bizarres), Annie M'Gregor and Mabel (roses), Hepworth's Seedling and Camp's Seedling (bybloemens). Second, Mr. Bentley, with Sir J. Paxton and Goldfinder (bizarres), Lloyd's Seedling and Mabel (roses), Adonis and Janette (bybloemens).

Class G.—Three dissimilar breeders.—First, Mr. Needham, with Sulphur, Adonis, and Annie M'Gregor. Second, Mr. Greef, with Excelsior, Friar Tuck, and Mabel. Third, Mr. Bentley, with Wm. Lea, Ashmole's 126, and Mabel. The premier breeder was Mr. Greef's Mabel.

Class H.—Pairs of Tulips, the Samuel Barlow Memorial prizes.—First, Mr. Hall, with Sir J. Paxton and Wm. Wilson. Second, Mr.

Bentley, with Sir Jos. Paxton and Masterpiece. Third, Mr. Needham, with Sir J. Paxton and Trip to Stockport. Fourth, Mr. Chater, with Duke of Sutherland and Rose No. 3. Fifth, Mr. Greef, with Lawrence Friend and Marshal Soult. The premier feather was awarded to Mr. Needham for Trip to Stockport, and Mr. Bentley had the premier flame with Sir Joseph Paxton.

Class K.—Ninety blooms of Tulips, in thirty named, dissimilar varieties, all classes to be represented. Prize: A silver Daffodil vase, given by Messrs. Barr & Son. Awarded to Mr. Bentley for a good exhibit, comprising Excelsior, Masterpiece, Sir J. Paxton (breeder and rectified), Goldfinder (breeder and rectified), Lord Stanley, Sulphur, Commander, Ajax, and Storer's 106 (bizarres), Lady Grosvenor, Aglaia, Queen of England, Rose Hill, Julia Farnese, Modesty, Clio, Annie McGregor (breeder and rectified), Mabel, Mrs. Lee, and Miss Edwards (roses), Bessie, Adonis, Duchess of Sutherland, Mrs. Ashmole, and Talisman (breeder and rectified), Nulli Secundus (bybloemens).

Class L.—Collection of Florist Tulips arranged for effect.—Silver medal, Mr. C. W. Needham.

Class M.—Display of English Tulips grouped for effect.—Prizes, the gold medal of the Tulip Society, and the silver medal of the Botanic Society, Messrs. Barr & Sons.

Class N.—Collection of Tulips, other than Florists'.—Silver medal, given by W. Robinson, Esq., Messrs. Jas. Veitch & Sons, Ltd.

Several interesting miscellaneous exhibits were represented, and amongst them Messrs. J. Laing & Sons, Forest Hill, staged a group of mixed plants comprised of Rose Crimson Rambler, Hydrangeas, Gloxinias, Calla Little Gem, Lilliums, Ericas, Cannas, and a few Orchids, together with foliage plants such as Crotons, Dracenas, Ferns, and Palms. Taste in arrangement added to the effectiveness of the group. Very pleasing was the exhibit sent by Mr. Charles Turner, Slough, consisting of Azaleas, fancy Pelargoniums, and Carnations. Amongst the latter were Malmaisons, Princess May, Sir Evelyn Wood, and The Churchwarden. A fine plant of Richardia Elliottiana was conspicuous, and Ferns and Palms were held in arrangement. Mr. Robert Sydenham, Birmingham, showed an Iris in a vase to illustrate his method of growing these bulbs in cocoa-nut fibre refuse and shingle without damage. Messrs. Kelway, Langport, showed a collection of Pæony flowers, which showed traces of having done previous duty in a similar capacity, as many of them were faded. A collection of Tulips came from Messrs. Jas. Veitch & Sons, Chelsea. Amongst others were noticed Magnet perfecta, lutea major, Velvet Gem, fulgens, Diamond, and Rose Crown. Ixias in variety were included in the collection. The silver medal presented by W. Robinson, Esq., was awarded to this exhibit.

The greater part of one side of the corridor was occupied by the varied and interesting exhibit of Messrs. Barr & Sons, Covent Garden. First came the Darwin section of Tulips, comprised of Glow, Erguste, White Queen, Loveliness, The Sultan, Zephyr, Flambeau, Hecla, and others. Parrot Tulips were staged in the shape of Large Yellow, Crimson Beauty, Coffee Cooler, and Admiral de Constantinople. Rectified Tulips were also shown in great variety, and in addition to the foregoing there were numerous vases, containing Irises, Pæonies, Scillas, and Narcissi, the whole making up the chief feature of the show, and worthily winning the silver medal of the Royal Botanic Society and the gold medal of the Royal National Tulip Society.

THE CONFERENCE.

The Conference, which had for its object the arousal of further interest in the cultivation of English Tulips, was held in the Museum in the afternoon of the opening day, under the chairmanship of Mr. J. Wright. In his introductory remarks Mr. Wright spoke of his own early interest in the Tulip, which had increased largely since his connection with that great lover of the flower—the late Dr. Hogg, who was the only man he had ever known who had given £90 for a single bulb. He was glad to be able to say that the days of fabulous prices were gone for ever, also that the Tulip was rapidly increasing in popularity, for not only was the flower used largely for the decoration of London drawing-rooms, but recently a Tulip Ball had been held in Surrey, when every room in the house was decorated with a different variety, supplied by Messrs. Barr & Son from the Ditton Nurseries. Though, concluded the Chairman, the Tulip was a native of the East, the flower in its most beautiful form was the result of the art of British florists, and those who grew and admired the English Tulip could appreciate to the fullest what has been and can be done by those who were and those who still are imbued with a love for the development of this stately flower. He then called on Mr. W. Bentley to read the first paper, remarking that it would be difficult to find a man better qualified to deal with the subject.

THE HISTORY OF THE TULIP.

Mr. J. W. Bentley, in the commencement of his paper, stated that so wide was the scope of his subject that it was impossible to treat it fully in so short an essay. The Tulip, he stated, was of Eastern origin, and had been grown for a long period by the Turks previous to its appearance in Vienna in the year 1559, and its subsequent advent into England in 1577. There were reasons for believing that the Turks had been raising new Tulips for a long time before their appearance into western Europe. Parkinson, writing in the year 1629, mentioned 149 varieties, and another writer in 1685 spoke of 300 varieties. Steadily the cultivation of the Tulip increased until in 1710 the vast number of names began to be a subject for ridicule. In France and Flanders, too, the Tulip held its popularity, and there is reason to believe that many of the so-called

Dutch sorts were originally French seedlings. Up to the year 1750 the Tulip held its sway, when its popularity waned somewhat in favour of American plants, which then found their way to our shores. During the early years of the present century the position of the Tulip was assured in the South of England, though it was not till 1840 that growers in the north began to perceptibly interest themselves, when such men as Storer, Ashmole, Jackson, and others took up the cultivation of the English Tulip with zest. For some time the interest in the flower was confined chiefly to the northern counties, though now it appears to be evenly distributed. Few growers, said Mr. Bentley, now raise seedlings, one bright exception, however, being the Rev. F. D. Horner.

Speaking on the properties of florists' Tulips, Mr. Bentley stated that the English section flowered about three weeks later than the Dutch, and with a knowledge of the capacity of the flower certain rules had been formed respecting good specimens. One was that the stems should be strong and sturdy, another that the flower should have six petals, and a third that when fully expanded the bloom should be shaped like half of a ball. The essayist then explained the constitution of the colouring which made up the three sections—rose, bybloemens, and bizarres. These classes are sub-divided into breeders, feathered, and flamed flowers. So far as he (Mr. Bentley) knew, no other flower breaks in the same way as the Tulip. The breeder is the seedling form whence we get the other sections. A breeder breaks, no one knows when or how, but therein lies the charm that appeals so much to Tulip lovers. They break into all forms, both bad and good, and it is important to get a good strain, as the same variety can and does exist in different forms.

It was formerly the custom not to name breeders until they had broken, but much confusion was the outcome of it, as for instance one grower might have one form under one name, and a second under another, though both were from the same breeder. Varieties excellent in the three forms are not numerous, though Sir Joseph Paxton is a striking instance of one. Sometimes the best coloured breeders break into bad flowers, and those that are dull in the first state break into most beautiful blooms. Mr. Bentley concluded by stating that the Tulip grower has to deal with an erratic and uncertain flower; sometimes he is disappointed, and other times more than pleased. He had not dealt lengthily with his subject, but if any further information were required he would refer those present to a series of articles he had written in the *Journal of Horticulture*, and he felt grateful to the late Dr. Hogg for the opportunity given, which resulted in their publication.

THE CULTIVATION OF THE TULIP.

The Chairman next introduced Mr. C. W. Needham, who at the commencement of his paper said that the Tulip was one of the easiest of plants to grow either in town or country. The bed should be well drained, and if the situation were at all wet the surface should be raised about 6 or 8 inches. Soil from the kitchen garden is suitable, but it should be porous rather than stiff. Turf may be used with advantage, but if so it ought to be stacked twelve months previously. He preferred to plant the bulbs 6 inches apart in rows, the beds being about 4 feet wide, and of any length. Some grew them 4½ inches apart, though he preferred the former as the orthodox distance. After planting the bulbs should be lightly covered, and later another addition should be made, leaving the bulb about 4 inches below the surface. No crude manure ought to be used, and though the same soil may be used for several years, a change is advantageous. If, however, the former method is adopted, it is a good plan when turning over to give a light application of salt or quicklime. Nitrate of soda, superphosphate, or kainit may be used moderately, but he preferred frequent change of soil. The object should be to keep the bulbs of average size. Gross feeding results in coarse flowers, and small sound bulbs invariably give the best blooms. Though the bulbs will grow and flower if left in the ground for the whole year, it is better to take them up and store them.

At the time of this operation the advantage of planting them 6 inches apart will be appreciated, as then there is little danger of injuring the bulbs on taking up. A cool dry place is the best for storing the bulbs, which on no account must be left on the ground, even for a short time, or the effects of the sun will be seen afterwards in the shrivelling of the outer skin. Tulip growers generally store their bulbs in boxes having a series of compartments arranged in order that the varieties may be not only kept distinct, but arranged in the beds. A Tulip book is also necessary, in order that the sorts may be classified, and notes made respecting them. The chief enemies of the Tulip grower are hail storms and frost, therefore if for exhibition some protection must be afforded. This, said Mr. Needham, can be provided by a covering of tiffany or an arrangement of garden lights placed over the beds. A critical time in the life of a Tulip flower is when they are first showing and the rain lodges in the axils of the leaves. If the moisture freezes it means death or disfigurement of the bloom; hence the advisability of giving protection. This is not a matter of so great importance to the ordinary amateur as to the enthusiastic exhibitor who wishes to get his flowers as faultless as possible. In conclusion Mr. Needham said that the cultivation of the florist's Tulip was simplicity itself, and there was nothing to daunt anyone who had the inclination from taking it up.

In the discussion that followed the paper Mr. Wright spoke of the fungus known as the Tulip disease, which to his knowledge had on several occasions played such havoc with the late Dr. Hogg's collection.

In reply Mr. Needham considered that the disease was a result rather than a cause, and after careful observation they had come to the conclusion that it was owing to the effects of hail and frost, which damaged the outer tissues of leaf and stem, and here the fungus made

its appearance. In supplementing this statement Mr. J. W. Bentley stated that the fungus attacked the injured parts, but, in his opinion, it afterwards spread to the healthy plants. In reply to another question respecting the theory of rectification in Tulips, he (Mr. Bentley) could give no idea of explanation. He had heard of several so-called theories, which, however, were too absurd to be entertained, and up to the present the matter remained a mystery.

Mr. Barr agreed with the essayist as to the cause of the disease, and said that it might also arise from the lack of air when the bulbs were resting, therefore a free current should be allowed to pass above and below the bulbs. He did not agree with Mr. Needham respecting the distance apart to plant the bulbs. He thought 3 or 4 inches ample, as they helped to protect each other; and in their nurseries he had noticed that during recent hailstorms those planted closely together were not damaged to such an extent as others dispersed at a distance of 6 inches. Referring to the proper time for lifting, he thought it should be done as soon as leaf and stem became limp, and could be easily bent in the hand without breaking. Mr. Chater was of the opinion that the disease was not a fungus at all, but the direct cause of hail or frost, as he had not noticed that it spread from one plant to the other.

Mr. Krelage (Holland) spoke of the disease as it affected Dutch plants. The cause is thought to be in the ground, as it is confined to locality. Scientific researches are, however, being made to ascertain the cause, and as a preliminary statement he might say that he thought the spread of the disease common in Holland was owing to the lack of some element in the soil, and where this was present no disease appeared.

Mr. R. Dean said that in the ordinary course a Tulip was a breeder first, and then rectified, and asked Mr. Needham whether he had ever seen a rectified Tulip go back to its original form of a breeder, to which he received a negative reply. Several other gentlemen took part in the discussion. The Chairman in thanking Mr. Needham for his highly instructive paper, said it appeared that the spread of the disease was the result of frost and hail. If, therefore, the plants can be protected and kept in a healthy state the fungus can be held in check. All therefore should be done to make the conditions as favourable as possible for the welfare of the plants, and as equally unfavourable for the spread of the disease.

HYBRIDISING TULIPS AND RAISING SEEDLINGS.

In the unavoidable absence of the Rev. F. D. Horner, the writer of the essay, it was read by Mr. Bentley. Writing of seeds and seedlings, Mr. Horner stated that the chief success lay in the selection of the best parentage; form mattered little, though the self-coloured section carried the best and largest seed pods. Explanations followed respecting the best points in the various classes of flowers, and which forms could be fertilised with the best results. Precautions must be taken after impregnation to prevent the inroads of bees; though there is no necessity to pin up the flower, a little cotton wool placed inside being quite sufficient. Unlike many other flowers, the Tulip does not close or die after hybridisation. When the petals have fallen the pistils should be removed, and after the swelling of the seed pods, which takes place in June and July. The seed pods may be taken off in August, when they commence splitting at the points.

The essayist explained the process of seed-forming, and in regard to sowing said that early in September was the best time, when the young plants will appear in February. The tiny seedlings, which resemble the earliest growth of the Onion, are perfectly hardy, and require no coddling. No further growth is made the first year, and probably seven or eight years will elapse before the bulbs bloom. They will, however, occasionally flower the fourth season. He, Mr. Horner, has sown the seed in the open ground and left the bulbs there till they have bloomed.

Speaking of the selection of new seedlings, Mr. Horner considered that the qualities can generally be determined as soon as the plant blooms. The Tulip in its breeder form was not of high moment, as bright colours were not necessary in obtaining good breaks. Often the best forms were got from dull breeders, and *vice versa*. In conclusion the essayist thought there was much remained to be done in the hybridisation of Tulips, particularly in the rose and hybloemen classes. Too much attention had been paid to marking to the neglect of form, and he considered the former was much ahead of the latter.

Mr. Bennett-Poë proposed a vote of thanks to the compilers of the essays, which was suitably acknowledged by Messrs. Needham and Bentley. The latter moved that a hearty vote of thanks be given to Mr. Wright for the able manner in which he had presided over the proceedings, and a brief reply brought the interesting Conference to a conclusion. Before the meeting dispersed it was suggested that steps should be taken for the publication of the essays.

ARNICA MONTANA.

SCORES of plants that are comparatively rarely seen, except in the collections of enthusiasts and in botanical gardens, are of very great beauty. Amongst these must be classed *Arnica montana*, which is depicted in the accompanying woodcut (fig. 89), for it is decidedly neglected by the majority of cultivators. On a rockery it has a pretty appearance, its bright orange-yellow flowers being freely produced, and at the present time it is very attractive. Of the ordinary shades of yellow we have abundant floral representatives, but a pure orange is not so frequently seen, and contrasts with many other colours very effectively.

ROYAL BOTANIC SOCIETY.

MAY 19TH.

THE show at the Royal Botanic Society's Gardens on Wednesday was held in the large marquee, a place admirably adapted to such exhibitions. The display, however, was not at all large; in fact, the tent looked somewhat deserted. The quality of the various exhibits ranged very high, Roses being particularly good. The competitive section was poorly represented as usual; indeed, without the miscellaneous exhibits the show would have been a failure.

Messrs. W. Paul & Son, Waltham Cross, arranged a handsome crescent-shaped group of Roses in pots, with boxes of cut blooms in the foreground. Crimson Rambler, La France, Enchantress, Madame Montet, Duke of Edinburgh, Aurora (new Hybrid Tea), Duke of Teck,



FIG. 89.—ARNICA MONTANA.

and Claire Jacquier were conspicuous. Mr. W. Rumsey, Joynings Nurseries, Waltham Cross, sent cut Roses and plants in pots. The quality of such varieties as Niphetos, Mrs. Rumsey, The Queen, and Souvenir d'un Ami was excellent. Mr. J. Odell, Goults Green, sent Canterbury Bells in pots.

Mr. C. Turner, Slough, sent a group of Azaleas and Pelargoniums, all of good quality and effectively arranged. Palms, Ferns, and Spiræas were utilised for diversity. Mr. R. Scott, gardener to C. Newington, Esq., The Holme, Regent's Park, staged a miscellaneous group of flowering and foliage plants. Amongst others were noted the yellow Calla, Clerodendron Balfouri, Cannas, Zonal Pelargoniums, Azaleas, Ferns, Palms, Dracænas, and Caladiums. Messrs. J. Waterer & Sons, Bagshot, sent a collection of named Rhododendrons in pots, comprising many varieties of great merit. Mr. J. R. Box, Croydon, staged Calceolarias in very good form.

The Tulips sent by Messrs. Barr & Sons, Covent Garden, made a bright display, the interest of the exhibit being added to by the use of Irises, Delphiniums, and Daffodils. There were Darwin Tulips, besides breeder and rectified florists' varieties. The colours, substance, and

form of the flowers were of great merit. Messrs. T. Rivers & Son, Sawbridgeworth, sent a group of Peaches and Nectarines in pots. The specimens shown were grown in the very best style, the wood and foliage being clean and healthy and the fruit richly coloured. Cardinal Nectarine was superb. Mr. W. Bull, Chelsea, sent a few new plants, and Mr. Kelf, gardener to Mrs. Abbot, Regent's Park, splendid Royal Sovereign Strawberries in pots, besides Peas and Lettuces.

Mr. W. Rumsey, the only exhibitor, secured the first prize for nine Roses in pots, while in the class for a group of greenhouse Azaleas equal first prizes were given to Messrs. Kemp and Wilson and Mr. W. Holmes, the latter showing the better-grown plants, and the former larger numbers. Messrs. Kemp and Wilson were again first for six Azaleas in pots. Gloxinias, Orchids, and Ferns were also shown, but in each case there was practically no competition.

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, The Royal Gardeners' Orphan Fund, Chiswick, W.

THE YOUNG GARDENERS' DOMAIN.

FORCING FRENCH BEANS.

"W. W." (page 419) claims for the growing of French Beans in small pots to gather a week or two earlier. As we can gather Beans from our large pots in six weeks from sowing, I take it that "W. W." can gather them in a month, and that in the depth of winter. I know it is easy to produce good Beans in November from autumn sown plants, but dare not hope to reach or break "W. W.'s" record of time or quantity in winter or in spring. Also he claims for the potting-on system that it must be better on account of the fresh soil used. With good drainage and careful watering, I fail to see how the soil can get stagnant in the time. With regard to liquid manure we have tried both ways with plants side by side, and I have yet to learn that the crop is larger or heavier by the use of it.—STONE WARRILOW.

GERANIUMS FOR WINTER BLOOMING.

CORRECTLY speaking these are Zonal Pelargoniums, but the old incorrect name clings to the plants with a sort of loving tenacity. Having secured strong well rooted young plants we pot them in 60's, using light generous soil. After we have grown them for about a month in a temperature of 60° to 75° they are shifted into 32's, using a compost of sound loam two parts, leaf mould one part, bonemeal, wood ashes, and soot in equal proportions to form one part, also a dash of coarse sand. They are potted moderately firm. We give them similar treatment to the above, keeping the syringe going among them for six weeks, after which we gradually harden them outside. The blooms are kept picked until the last week in September. The feeding they get is soot and manure water, with about four applications of nitrate of soda. The treatment I have mentioned produces for us any amount of bloom, plenty of plants bearing six and seven fully developed trusses at a time. Out of the fifty varieties we grow I prefer these twelve:—Brilliant, F. Arago, Mrs. Johnson, Olivia, Omphale, Aphrodite, Lady Chesterfield, Constance, Mrs. Keeler, Madame Chrétien, Rev. F. Atkinson, and F. V. Raspail.—ELVASTON.

[If "Elvaston" desires to see more of his notes in print he must leave at least twice the amount of space between the lines for the purpose of revision. Some of his lines had to be eliminated.]

A FEW NOTES ON THE DAHLIA.

WHERE summer bedding is practised on a large scale the Dahlia is grown extensively and to great advantage. In some cases it occupies large beds, and forms the centre of others. It is also grown in mixed borders and in beds set apart for cutting purposes, being one of the most useful flowers for house and harvest festival decorations. Plants that were started in March in a moist and brisk bottom heat will now be making free growth, and should be gradually hardened for planting out at the end of the present month or the beginning of June.

The Dahlia is a gross feeder, and if fine flowers are required the soil in which the plants are to be grown must be made very rich. The ground should have been deeply trenched and thrown up roughly the previous autumn or winter. It is not necessary to manure the ground at that time, as at planting the sites can be marked out for the plants, which should be from 4 to 6 feet apart, two or three spadetuls of soil thrown out, and as much manure added, thoroughly mixing the manure with the soil. Planting can then be done, placing some fine soil about the roots, and pressing the whole firmly about them.

At the time of planting a strong stake must be provided for each plant, and to this the plant tied and made secure against harm from winds. The plants should then have a thorough watering. The principal work afterwards will consist in attending to watering, tying, and looking after insects. Earwigs are the most troublesome pests of the Dahlia, eating as they do the young foliage as well as the blooms. They can be

trapped by placing a small flower pot inverted, with a little moss in it, on the top of the stakes.

As the plants make growth it will be necessary to keep the young shoots securely tied to the stakes, and during hot weather the plants will be benefited by having the soil about them slightly loosened, and a mulching of rich manure placed over it. Disbudding should be attended to, and if fine blooms are required four to six shoots should be grown on each plant, according to the variety. Those producing large flowers may be allowed to carry the most shoots. I think the Cactus varieties are now the most popular, although the single Dahlia is extremely useful for decorative purposes.—YOUNG PRACTITIONER.

HANGING BASKETS.

WHAT cold, bare-looking places our conservatories and greenhouses would be without a few hanging baskets. They seem as it were to put the finishing touch to a well-arranged house, no matter whether it be occupied by foliage or flowering plants. In these days of copper wire and artistically made wooden baskets let us not forget that for anything to look really well it must be as natural as possible. Fancy wood and wire baskets are good for a change, but they are less natural than the old rustic baskets with pieces of cork projecting among the plants, improving the general appearance.

Plants should be selected suitable for the positions the baskets are to occupy. For a light stove we have the beautiful *Centropogon Lucyanus*, which, with its masses of bright rosy-coloured flowers, is a gem for winter, and the old stems are flowering now profusely. This may be alternated by baskets of *Nephrolepis exaltata*, with an edging of *Panicum variegatum*, or *Tradescantia zebrina*. *Asparagus deflexus* also looks well in the stove.

Among those which succeed under shady and cooler conditions are the *Platyceriums* (Stag's Horn Fern), *Pterises*, *Adiantums*, *Davallias*, and *Woodwardias*; while for companions of pendent habit to associate with them I may mention *Selaginella denticulata*, *Panicum variegatum*, *Pilea muscosa*, and *Tradescantias*.

Turning our attention to the conservatory and light flowering houses, we have plants almost without number suitable for baskets. Ivy-leaved *Pelargoniums*, *Fuchsias*, *Tropæolums*, of which "Coolgardie" is a deliciously scented variety with large yellow flowers; *Lachenalias*, which ought to be basketed in August, placing the bulbs all round the sides, top, and bottom of the basket as it is made up. Winter the baskets in a cool structure, giving little or no water, and place them in gentle heat in early spring. *Achimenes* require to be treated much the same as *Lachenalias*, except they may be basketed in February and placed in heat at once, removing them, together with the *Lachenalias*, to a cool house as soon as they are well on the move. *Lobelias*, *Musk*, *Campanula isophylla alba*, with the dark species *purpurea*, and a host of others make a grand display the greater part of the year. Thus we see by the few plants enumerated that we are not without material with which to furnish our rustic receptacles.

The preparation of these is as follows:—Procure some live moss, or, if difficulty is experienced in obtaining moss, turf that has been in stack for three months will answer the purpose; line the baskets with the same, place the centre plant in position, and add soil as the work of planting proceeds, finishing with a ring of small plants of the chosen creeping kinds. Water well in bright weather, which will be almost all the attention required, except perhaps a few pegs may be needed to keep the trailing plants within bounds until they cover the baskets, after which time they may be allowed to hang down naturally.

Touching the Editor's note on page 349, I beg to say that at the time of writing in the Midlands we have not yet finished playing football, though possibly, as he suggests, the "willow" will have an irresistible charm in the near future.—YOUNGSTER.

[We should be sorry to deprive, if we could, any "youngster" of healthy, enjoyable, reasonable recreation, but some Midlanders seem almost to go mad over football, and cricket cranks are not unknown. Not very long ago a young gardener, and we believe a good one, was so proud of his accomplishments in the field that amongst other testimonials that he presented in seeking a much-coveted situation was one that recounted his ability as a cricketer. This lost him the position he sought as head gardener and a salary of £100 a year, with et ceteras. We have seen the testimonial, also the young man, as well as the gentleman in question, who could not be induced to change his mind and give the young gardener a trial. Trouble, he said, had arisen through an abuse of privileges, and he would run no further risks.]

NATURE'S LARDER.

THE prolongation of life in the vegetable kingdom consists in its members during growth receiving a fair abundance of readily absorbable nutritive matter. The agri-horticultural brotherhood, aided by chemists, have unitedly, by observation in practice and laboratory experiment, massed many valuable principles for our guidance in vegetative culture.

By Mr. W. Dyke's process, recently described in this paper, we might classify soils—namely, weighing a quantity of a certain kind (perfectly dry) and burning it to find the loss of organic matter; or by shaking samples of soils in jars of water, to separate the clay from the sand. Thus we have sandy soil, 90 per cent. of sand; sandy loams, 10 to 40 per cent. of clay; loamy soils, 40 to 70 per cent. of clay; clay loams, 70 to 85 per cent. of clay; and so on. A marl is a soil with 5 per cent. or so of calcium carbonate (CaCO_3). Calcareous soils have over 20 per cent. of lime.

Mr. Dyke in his instructive chemistry lessons has explained how soils

are formed; how by rock decay, plus the et-ceteras, we are blessed with a food supply, whereby the herbage of the earth finds sustenance. A fertile soil should contain from 9 to 15 per cent. of humus—i.e., vegetable mould, and 85° or 90° of mineral matter. Thus soils are chiefly composed of humates, phosphates, silicates, carbonates, nitrates, and other combinations. Ammonia and carbonic acid gases permeate the whole, or ought to, if we are to have a productive agent. When an acid such as phosphoric acid combines with another (H_3PO_4) substance, its last letters, "ic," are changed to "ate"—phosphoric acid and potash = potassic phosphate.

A sandy loam is cultural desideratum, unfortunately not often met with. In cases of heavy clay lands artificial means must be applied to obtain from it the hoarded constituents. Drainage in such a case is of infinite value. All land on which water remains longer than two hours after rainfall requires our aid to free it from stagnation. Drains are placed 2 feet deep on very heavy land, and deeper according to texture. On medium soil drains might be 9 feet apart, never less than 4 feet deep, and having a fall of from 1 foot in 50 to 1 in 150. The main drain or outlet must always be determined before cutting operations commence. I have only had opportunity of seeing tile drains laid, although I believe that large flat stones placed triangularly or square when well firmed, and the soil beaten tightly over and under them, are suitable and efficient where stones are plentiful. The "run" of drains generally goes with the slope of the land.

I am not sufficiently well acquainted with the details of measuring, levelling, and tile laying to give all information. Suffice it to say that, having marked off the drain lines, and having all tools ready, set to work, and continue to work well and with accuracy, straight and clean; lay the tiles firm and close; see that sufficient fall is allowed; place over each tile a turf, and fill in the worst quality of soil over the turf. Do not scatter the surplus soil after filling in the drain, remember the sinkage. Thus briefly have we outlined a system of drainage, the good effect of which we shall inquire into.—A YOUNG SCOT.

(To be continued.)

CINERARIAS.

EVERY gardener is familiar with this attractive winter and spring-flowering plant. It is useful to the private gardener for house decoration, for a display of bloom in the greenhouse or conservatory, and also for cutting. It is useful to the market grower as a sale plant, for making into sprays and other purposes.

Cinerarias are easily raised from seeds, or offsets taken from the old plants; but the latter method is only practised in the case of named and double varieties. Seeds are sown at different periods, ranging from April to July, according to the time the plants are required to flower. Sow thinly in pans, comprising a mixture of sifted loam, leaf soil, and a small quantity of sand, previously watered. Cover the pans with a sheet of glass, and place in a cool position, never allowing the soil to get dry. Seedlings will soon appear, and when large enough to handle they can be pricked into pans, containing the same kind of compost as before. The next move required by the plants will be into large 60's, taking care to secure as much soil with the roots as possible.

After potting arrange the plants in a cool frame containing a layer of ashes or some other material to afford a moist base for the pots to stand on. The frame should be kept rather close for a short time, the plants shaded from the sun, and also frequently syringed. When the roots have filled the small pots the plants may be transferred to the size in which they are required to flower, 6 and 7-inch pots usually being employed. Suitable soil for potting this time is a mixture of fibry loam, broken into lumps about the size of a Walnut, leaf soil, silver sand, with a little dried cow manure added. The plants may be arranged in frames as before, and as soon as the roots take possession of the new soil air must be freely admitted.

During bright weather a shading of tiffany is helpful, and syringing twice or thrice a day beneficial. As soon as the flower heads appear weak liquid manure may be given, also an occasional top-dressing with artificial manure will be found beneficial to the plants.

If large flowers are required disbudding may be practised, removing one-third of the buds, taking care that these are the smaller. Disbudding is always required in the double varieties.

Cinerarias are liable to attacks of green fly and mildew. The former can be removed by fumigating with the XL fumigator, or with tobacco, and the latter by dusting the plants with flowers of sulphur, or by syringing them lightly over with a solution of Calvert's carbolic soft-soap at the strength of 2 ozs. of soap to a gallon of rain water.—ELVEDEN.

MAGNOLIA STELLATA.—This is the earliest of the hardy Magnolias to open its blossoms. As early as the middle of March the flowers began to open, and before the end of the month the plants were one mass of pure white blossoms. The flowers are star-shaped, and average from 3 to 4 inches across. They are produced with great freedom, plants 2 feet high by 1½ foot through often having from twenty to thirty fully expanded blossoms on them at one time. In England it attains a height of from 3 to 4 feet, and assumes rather a stunted habit of growth, possibly due to the freedom with which the flowers are produced. When planting a mixture of peat and loam should be given, and care taken not to injure the roots. For forcing this plant is admirable, the waxy star-shaped flowers making a striking contrast to many others which are used for a similar purpose. A bed of this charming Japanese shrub is to be seen outside the temperate House at Kew.—W. D.



HARDY FRUIT GARDEN.

Thinning and Regulating Young Growths.—When the dis-budding of fruit trees, especially those which require constant and regular attention in this respect in the early stages, has been neglected and the superfluous shoots have been allowed to extend too far before attempting their entire removal, gradual thinning with the knife must be resorted to. It is not nearly so easy to insure good results with Apricots, Peaches, Nectarines, and Morello Cherries when the thinning and regulation of the growths are not adopted early, so that those shoots finally retained may have the full benefit of light and air. On the other hand the reduction of the number of shoots ought not to be too severely carried out. It is best to retain more than are actually wanted for fruiting. This provides a good selection at the winter pruning, when the best can be nailed in and the remainder cut out.

Plums and Sweet Cherries.—The laying in of young shoots wherever wall space is available for them to be developed and perfected without crowding is a good method of insuring a fruitful condition of the trees. Similar shoots, however, laid in in the previous year may not show a decided tendency to form fruiting spurs all their length, but rather to produce young growths. Whether these side growths are few or many they will, if left to extend, more or less crowd the trees. All such had better be pinched at the third large leaf. This greatly assists in concentrating the vigour in the formation of artificial spur growths. The upper buds of these shortened shoots will almost certainly start into growth—lateral growth—which must be pinched back to the first leaf. Growths will again start from these. This is termed sub-lateral growth, and as often as made should be pinched to the first leaf throughout the season. Prune the whole back to the lower bud or buds near the main branch in winter. Artificial spurs are formed in this way. Short, stubby, natural spurs require no shortening.

Thinning Fruit.—Apricots, Peaches, and Nectarines should have the first thinning of the young fruits when the latter have attained to the size of horse Beans. Those most advanced in swelling are the best to retain, because they are properly fertilised. Remove the small, weak, and ill-placed fruits first. This thinning will suffice for a time, or until the fruits reach the size of Hazel Nuts, when they ought again to be looked over, removing the least promising. If the fruits have not set very thickly the earlier thinnings may be dispensed with. It will, however, be useless to retain fruits in unsuitable positions where they have not room to swell properly. In light cropped trees these only need removal. Early gatherings of Gooseberries may now be made. The berries are useful for tarts, and by some are preferred when rather small. These pickings suffice to thin the bushes.

Mulching Fruit Trees.—Trees and bushes promising to bear full crops of fruit may be assisted materially in perfecting the fruit if the soil over the roots is covered with a layer of short manure. Spread it about an inch thick as far as the roots extend, adding to it, if necessary, at intervals throughout the season. The beneficial effects of a mulch over the roots in a dry season are apparent in the moist condition of the soil. Short grass also affords material for mulching, though it does not contribute any support to the roots, or enrich the soil until thoroughly decomposed. Trees that are fruitless ought not to be freely mulched with rich manure if they are making strong growths, but if weakly a liberal dressing will prove most beneficial. Young trees recently planted must be lightly mulched, so that the rapid evaporation of moisture from the surface soil may be arrested. The roots of Raspberries and Currant bushes multiply abundantly near the surface when it is kept cool and moist with layers of good manure.

Strawberries produce strong flower trusses, which open and set freely when the plants are supported with a mulching of manure between the rows. It also obviously assists the fruit to swell up to a large size, and prolongs the season of fruiting.

Watering Strawberries.—In very dry weather Strawberries, even when mulched, will be benefited by applications of water to the roots during the time the plants are in flower and setting fruit. Liquid manure may also be given, though in a clear state, and avoid discolouring the fruit.

Watering Wall Trees.—The soil at the base of walls, in which the roots of fruit trees extend, is subject to considerable drying influences. The foundation of the wall allows moisture to drain away readily, while the large expanse of foliage abstracts a great amount of the water which the roots take in from the soil. This demand upon the soil moisture will continue through the season, increasing rather than diminishing; therefore, before the trees begin to feel the effects of dryness, apply a liberal soaking of water to the roots. Lack of moisture in the soil is frequently the cause of young fruits falling prematurely, and others failing to swell. Much of the moisture thus applied may be conserved by giving a dry mulch afterwards.

FRUIT FORCING.

Peaches and Nectarines.—*Early House.*—When the trees of Alexander, Waterloo, and Early Louise Peaches, with Cardinal and Early Rivers Nectarines are cleared of the fruit, the shoots on which the

fruit has been produced should, if not required for extension, be cut away to the shoots that are to produce fruit next year. This admits light and air, and the foliage is more under the influence of water for cleansing purposes. Syringe forcibly to cleanse the foliage of red spider, and if this and scale continue troublesome promptly apply an insecticide. The foliage must be kept clean and healthy, and over-maturity of the wood guarded against by ventilating to the fullest extent after the fruit is gathered. Keep the borders moist, and in mild showery weather remove the roof lights. Stop or remove gross laterals, but allow some growth, as too close suppression of the laterals has a tendency to hasten the ripening of the growths, and when this occurs the buds may swell through over-development when they should be going to rest. Trees of Hale's Early and Dr. Hogg are now ripening the fruit, closely followed by Stirling Castle, Dymond, and Royal George Peaches, while Lord Napier and Stanwick Elruge Nectarines are fast changing colour also. These are all first-class forcing varieties, and combine high colour with excellent quality. When the fruit is ripening it must not be syringed unless red spider appear, when a forcible syringing should be given on a fine morning. If water lodge on the fruit for any length of time the skin cracks and mould infests the flesh, imparting to it an unpleasant flavour. Supply sufficient water at the roots to maintain the foliage in health, but avoid an excess in the soil and atmosphere, as it has a tendency to induce splitting at the stone in certain varieties.

Trees Started in January.—When the trees are of the varieties first named in the preceding paragraph they will be ripening the crop, and must be treated as therein advised; but when of the midseason kinds of Peaches and Nectarines the fruit then will be swelling rapidly, and must have every encouragement. Above all things expose them to all the light possible, turning the leaves aside. This is apt to cause the fruit to ripen too fast on one side, but it may be prevented by placing a thin piece of paper over and just clear of the fruit in the hottest part of the day, so as to subdue the force of the sun. Maintain a circulation of air constantly by a gentle warmth in the hot-water pipes, keeping the temperature at 60° to 65° at night, and 70° to 75° by day artificially. Spare no effort to eradicate red spider before syringing ceases, as it should when the fruit commences to ripen, otherwise the pest will increase so rapidly as to prejudice next season's prospects by its ravages on the foliage. Thoroughly water inside borders, also outside ones if necessary, and supply a light mulching of lumpy manure, such as spent Mushroom bed material or partially decayed stable litter, keeping it moist by sprinkling when it becomes dry.

Succession Houses.—Allow trees time to stone, not hurrying them, or they may be so exhausted as to ripen the fruit prematurely if it be not cast in the process. Root action will be encouraged by a free retention of the laterals on weakly trees, and their removal on strong trees will somewhat check their activity; but these extensions and restrictions must not be excessive, as the fruit will be prejudicially affected. Avoid crowding the principal foliage, and keep insect pests in check by syringing the trees twice a day. Thin the fruits where too thickly placed, removing all surplus ones when stoned, and turn the others to the light, so that they may colour from the apex. Supply water or liquid manure to weakly trees, but do not feed vigorous ones, as that will only aid growth and hinder stoning. Admit air early and close in the afternoon with plenty of atmospheric moisture, so as to raise the temperature to 80° or 85° when it is desired to accelerate the fruit, and ventilate a little afterwards for the night, so that the temperature may fall to between 60° and 65°. Maintain these temperatures by artificial heat in the daytime; they will be ample until the stoning is completed.

Later Houses.—Overcrowding is a great evil. Train and tie in the young shoots that are to carry next year's crop, and allow them to extend as far as space permits. Stop or remove all gross shoots, and pinch side growths that are not wanted for next season's bearing or for furnishing the trees. Thin the fruits, leaving only a few more than are required for the crop, and apportion the fruits to the vigour of the trees. One fruit to each square foot of trellis is ample for Peaches of the large varieties. Nectarines may be left at 9 inches. Syringe the trees twice a day in fine weather, always sufficiently early in the afternoon to allow the foliage to become dry before night. If vigorous trees are dripping with moisture in the morning omit the afternoon syringing. Supply water when necessary, so as to moisten the soil down to the drainage. Open the sashes before the sun acts powerfully on the foliage, and increase the ventilation with the sun heat, closing early if it is desired to accelerate the ripening of the fruit, but if wanted to ripen late admit air freely day and night. Young trees in course of formation will need dishudding, leaving the shoots for forming main branches 15 to 18 inches apart, and the bearing wood along them at a similar distance, training extensions their full length, and pinching the side shoots not required to extend to two or three leaves so as to form spurs. Pinch the laterals at the first leaf, and subsequent growths to one joint as produced.

Vines.—*Houses of Ripe Grapes.*—Afford fire heat only to prevent the temperature falling below 60°, and admit a free circulation of air. Do not allow the borders to become very dry, but keep them moist, and mulch with rather short, dry litter, from which the manure has been removed and the material washed by rain. It will retain moisture a long time, and lessen the evaporation from the surface of the borders. A little moisture in the atmosphere is not injurious to the Grapes, and is highly beneficial to the foliage, which must be kept clean and healthy. Fumigation or vaporisation must be resorted to if thrips appear; for red spider there is no remedy so safe as the tedious process of carefully sponging the leaves with tepid water in which about 2 ozs. of softsoap per gallon has been dissolved. Heating the hot-water pipes and brushing them with a cream of sulphur and skim milk must be done

very carefully, as it turns white Grapes purple, and hardens the skins of all so as to render them liable to crack and to become spotted. Place a double thickness of herring nets over the roof lights where Black Hamburgs are hanging, in order to enable them to keep their colour.

Succession Houses.—Bright weather greatly improves Vine foliage when proper regard is paid to ventilation, and utilising sun heat saves fuel. With sun heat and plenty of moisture more real benefit is derived in a week than in a month of dull weather with fire heat. The Vines being in full growth the temperature may be allowed to rise to 90° or 95°, closing the house at 85°, employing fire heat only to maintain a temperature of 70° to 75° by day and to prevent it falling below 65° at night, though it may recede to 60° on cold nights. These remarks apply only to Vines in full growth, as those which have Grapes approaching ripening should have a circulation of air, and those well advanced in ripening being kept cooler and drier. Admit air early in the morning, as the sun's rays act powerfully on the condensed moisture formed during the night on the foliage, causing scorching.

Watering.—Although stated interval waterings answer where the known requirements from long experience have been acquired, there are variable circumstances which upset calculations. Thorough supplies are usually afforded at starting to insure the moistening of the border materials to the drainage when the Grapes attain to thinning size and when they have commenced ripening. Those are essential feeding rather than watering periods, and ought to be carefully attended to, either by surface dressings washed in with tepid water or applications of liquid manure. In moisture-holding soils Vines may take no harm with those only, but inside borders of limited area require more frequent supplies of water. There are more failures from insufficient than over-waterings, the borders being properly constructed and the drainage complete. Watering twice a week in the case of those with the roots restricted to borders of limited extent, and once a week for those which have a good run of border, is not too much from the time the Grapes swell after thinning until the Grapes are changing colour. There is, however, a great difference in the retentive power of soils. Some loams are naturally very loose, sandy, or gravelly, and they have the usual opening materials added, such as lime rubbish and charcoal, which makes them still more sieve-like; the consequence is the greater need of the watering pot. Strong soil will require water less frequently, but in no case must there be any lack of moisture at the roots throughout the swelling period.

Late Vines.—These will either have set the fruit or be in flower in most places, commonly the latter. Maintain a night temperature of 70°. Shaking the rods twice a day will be sufficient in most cases to distribute the pollen effectively, but in the case of shy setters do not fail to resort to artificial impregnation, going over the bunches carefully with a camel's-hair brush. All large-berried varieties that are good setters, such as Gros Colman and Gros Guillaume, should be thinned as soon as the berries are set, and with those that are liable to have very closely set berries it is a good plan to thin them before the flowers expand, as a practised eye can tell which flower buds by their vigour are likely to set, and the removal of the weaker strengthens them wonderfully. Whilst the Vines are in flower do not pinch the laterals, but when the blooms are fairly set remove the laterals at once so as to prevent overcrowding.

THE FLOWER GARDEN.

Campanulas.—Canterbury Bells, notably the calycanthema forms, are very effective border plants, and in masses are most showy, being at their best in June, but will flower for some time longer. They are perfectly hardy, very few plants being lost during the late winter, and if seedlings are raised during May or the early part of June these can be grown to their full size by next winter. Sown in pans, not too thickly, lightly covered with fine soil, placed in a hand-light or close frame, the seed germinates quickly, and if the plants are first pricked out in other pans or boxes they ought to be ready for the open borders in August. They require good room, and ought to be eventually disposed not less than 15 inches apart each way. Room being somewhat scarce, put them out 8 inches apart each way, and in the autumn either pot up or transplant elsewhere every other row, and half the plants in the reserved rows. They move readily, and flower grandly in pots during May.

Wallflowers.—It is of the greatest importance that these be raised early, plants obtained by sowing after the stress of other garden work is over usually being too small and weakly to flower well. Sow the seed at once, preferably in open borders well prepared and got into a free working condition. Open shallow drills 10 inches apart, water these if at all dry through a rose pot, sow the seed somewhat thinly, and cover with a little fine or sifted soil. Thin out the seedlings early where at all crowded, leaving them say about 3 inches apart, and later on transplant every other one to other borders or beds. In sowing keep each colour separate, masses of one colour being most effective, and always aim to raise abundance. The double German Wallflowers to be similarly treated. Should there be no plots of ground convenient, raise the requisite number of plants in boxes, and prick out early.

Brompton Stocks.—These, though less hardy than Wallflowers, are yet frequently very serviceable, strong plants flowering freely at this time of the year. They are not well adapted for the flower beds, not transplanting well, but they are quite at home in mixed borders and in separate beds, always provided they can be well established in their flowering quarters during the summer. The seed may be sown now or

during the early part of June, and the plants treated much as advised in the case of Wallflowers.

Antirrhinums and Pentstemons.—Seeing that these plants are among the most showy for borders, and not to be despised for the flower beds, more than ordinary pains ought to be taken with young plants that may have been raised from either cuttings or seeds. Unless they are strong at the present time and be got out early on fairly rich good ground, the flowering period will be late and the spikes weakly. They transplant well from boxes or beds of soil in which they may have been temporarily pricked out, and being hardier than the ordinary bedding plants should be placed out early. They are really very effective bedding plants, a dry season appearing to suit the Antirrhinums well.

Herbaceous Phloxes.—To have these at their best they must be well fed at their roots, and young plants in fresh soil will in any case surpass the older clumps. The latter, however, may be greatly improved by having the roots bared and a mulching of manure and a soaking of water given prior to returning the soil over the manure. They are always dry at the roots, no amount of rainfall soaking the ground immediately about them after the growing season commences. It is also advisable to freely thin out the young shoots, any kept or raised in frames to be at once planted out on good ground. Strong young tops taken off, placed singly in small pots, and stood in a close frame with little or no bottom heat, root quickly, and these, if duly planted out, or given a shift into larger pots, will develop sturdy spikes of flower.

Other Strong Herbaceous Plants.—If the flower stems are crowded, the display is short-lived; but if thinned the stems branch more freely and flower more continuously, the quality of the flowers also being superior. All pay well for receiving the same liberal treatment recommended for Phloxes, and the least that can be done is to well thin out the Japanese Anemones, Delphiniums, Helianthus, Heleniums, Asters, Hemerocallis, and Pyrethrum nigrinosum, some of the last named being also cut half down next month in order to have them dwarfer. A mulching of short manure, leaf soil, or spent tan would also greatly benefit the foregoing and all other moisture-loving border plants.

Bulbous Plants.—These, with few or no exceptions, are best left undisturbed, not being lifted till it is necessary for them to be divided and replanted. This applies with the greatest force to the Daffodils and Narcissi, choice or otherwise, while the various other spring-flowering bulbs also improve if only disturbed every three or four years. Where they must be lifted and stored away in boxes defer the operation if possible till after the foliage has ripened and died off, but if this period has to be anticipated, as in the case of bulbs in the flower beds, take them up carefully and replant, or lay them in where they will not dry too rapidly. Bulbs of Hyacinths, Tulips, and Narcissi are not of much or any service for the flower beds in the following season, but they would serve to brighten the mixed borders, and in time give a good supply of flowers. Much the same may be said of the bulbs flowered in pots. They are of no further service for pot culture, but they might well be bedded in closely together in any outside border and be permanently planted in the mixed borders and the fruit borders next autumn.

THE BEE-KEEPER.

FALLACY IN BEE-KEEPING.

How is it so many statements are constantly being made in the public press as to the enormous yields of honey that may be obtained if such and such a thing is done? Bee-keepers are advised to use hives containing frames of comb a few inches longer or deeper than the generally recognised size, and are assured that by such means a much larger surplus is obtained. A "Border Bee-keeper," page 399, has done well to turn on the searchlight and expose one of such statements.

LARGE HIVES.

During the past week I have had a practical illustration of bees in large hives. Last autumn a bee-keeper in a neighbouring county died. His family knew nothing about bees or the handling of them, so they were left to take their chance during the winter, and as no surplus was taken from them last season they were expected to be in a better condition than others in that district. They were, with one exception, all in well made frame hives, having from fourteen to twenty-four standard-sized frames in each, and as they had not been opened for nearly a year I was asked to examine them, which I did thoroughly.

All the combs had been left in the hives, and as there was plenty of natural stores I was anxious to see what condition they were in when compared with others in the neighbourhood of only half the size. The first hive examined had twenty-four frames of fully drawn out combs, and was originally intended, I believe, for a double hive, as there was an alighting board at each end, but one entrance was stopped up. Several of the back frames were quite clear of honey; but a couple of frames in the middle of the hive

were full of sealed stores, and would weigh quite 8 lbs. each. The honey was as clear and liquid and the cappings as white as is usually the case in July.

Judging from this I came to the conclusion that the bees did not cover all the combs last summer. Brood was formed in five frames, and the bees covered seven frames on the evening of a cool day. This was the best stock, although the others had nearly as many bees, and all had prolific queens. The floor board (which was a fixture) of one hive was covered with dead bees, and it was with difficulty the live bees were able to pass. The dead bees and debris were all cleared out, quite a shovelful, and there was then a respectable colony of bees left. The queen had filled several frames with brood, and this stock will doubtless be as good as the others when the honey flow comes.

But what led to the loss of so many bees? as never in my experience have I seen so many dead bees in a hive. The hive was perfectly dry, and there were ample stores. I am inclined to think a stray swarm had taken possession during last summer and had killed the inmates. The condition of the above, as a whole, was no better or worse than others in the district that had been fed with sugar last autumn and wintered on ten frames, clearly showing that it is not an advantage to winter bees in large hives. A straw skep finished the examination, and although there was a nest of mice on the top, the bees, being strong and nearly ready for swarming, had kept them outside. There will be but few swarms this month unless there is more genial weather.—AN ENGLISH BEE-KEEPER.

DEAD BEES.

I AM sending a portion of a comb from a hive in which all the bees have died, I believe from starvation, as there is no food whatever in the hive; but on looking at the comb I see a great number of very small insects, and something which looks like a chrysalis. I should be glad to know if they are very injurious to bees, whether it is infectious, also if the combs will be fit to use again. My other hives appear to be doing well.—W. D. CHICK.

[The bees doubtless died from starvation, as the comb is clean and free from disease, and may again be used for either breeding or storing purposes. Before doing so, however, it will be advisable to remove the dust and debris from the comb with a soft brush. Should there be any remaining in the cells a sharp tap or two on a table will have the desired effect. It will also cause the chrysalis to leave their quarters.]

These are not injurious to the bees, as a strong colony would at once remove them. They are usually found in hives that have remained empty for a considerable time, and increase more rapidly in a damp place than a dry one. I have often found small beetles and chrysalis, similar to those forwarded, in combs that have remained on the stand several months after the bees were dead. "W. D. C." may rest assured they are not infectious. The chrysalis of the wax moth, which in some apiaries are very destructive, is much larger, and usually attacks combs when not in use; but if the instructions given in previous notes are adhered to no harm will happen to them. It is interesting to know your other stocks are doing well.—AN ENGLISH BEE-KEEPER.]

DIVIDING STOCK.

I HAVE two frame hives, one of which is overcrowded. I am anxious to divide one, but do not know how to go about it. Is this the proper time to do it?—P. L. T.

[If only one extra stock is required remove three or four frames of brood in various stages of development and all the adhering bees from the hive now overcrowded with bees, put them in a new hive, and place an empty frame of fully drawn-out comb on the outside of brood nest, draw the division board close up, and cover up warm. If there are not sufficient bees to well cover the brood shake the bees off another frame from the stock hive, otherwise the brood may become chilled; remove the hive 3 feet from the original stand.]

The stock hive should be moved 3 feet in an opposite direction, and the empty space caused by the removal of the frames closed up by drawing the frames together, with the addition of two more frames of comb or foundation; other frames may be given as required. If you are not an adept at finding the old queen divide the frames and adhering bees equally into two hives. A few days afterwards examine them, and the one that is queenless will be found to have already started several queen cells; extra frames must then be given to the stock containing the queen, and all will be well.

A young queen will be hatched in about sixteen days; by that time there will be plenty of drones on the wing, and the young queen will become fertilised and laying in less than a month from the time the stocks were divided.—AN ENGLISH BEE-KEEPER.]

THE BEE-MASTER.—Mr. J. Hewitt of Sheffield has issued the first number of a cheap paper for apiarians. He has chosen a good title, and evidently intends to make the columns lively. A trenchant writer himself, it may be expected he will find others of a similar character, and, as was observed by a bee-keeper to whom we handed a copy, "we must look out for stings," but old bee-keepers are said to be proof against the appendages, and smile when the timorous shudder with fear. It will be well for persons interested in the subject to look out for the next number of the new venture in apicultural journalism from Sheffield.

TRADE CATALOGUE RECEIVED.

Kelway & Son, Langport.—Plants.



° All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," 8, *Rose Hill Road, Wandsworth, London, S.W.* It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

Grapes not Swelling (*No Name*).—Names and addresses of correspondents should be sent. It is not uncommon for vigorous young Vines to fail to set the berries freely. The samples sent shall be examined more carefully than there is time for before going to press. In the meantime perhaps the name of the sender may be forthcoming.

Decorative Pelargoniums (*H. K.*).—If you read what we say below on packing flowers you will find you used the worst material—dry cotton wool. The petals fell off the moment it was removed from them; whereas if soft green leaves had been used instead the flowers would have been firm and fresh. We can, however, see that there are many varieties in cultivation superior to your seedlings, attractive as they are for decorative purposes.

Vine Leaves Blistered (*J. D.*).—The very fine leaves are blistered by a sudden admission of cold air, which caused a chill, and being afterwards followed by more genial conditions the sap rushed to the affected part and caused an enlargement or growth of new cells to repair the injury. This results in a thickening of the tissues, and the rusted appearance on the under side of the leaves. Although this is better avoided, as it may by timely and judicious early ventilation, the Vines are not materially prejudiced, especially when they glow with health as yours do, being deep glossy green on the upper surface, of stout texture, and perfectly clean. You have no need to feel alarmed, only attend carefully to the ventilation, and avoid cold currents of air. This is difficult to attain during the cold weather that has lately prevailed, and especially in situations near the sea, as the sun comes out powerfully after a period of dull weather, heating the enclosed atmosphere in a very short time. As this means expansion of moisture there is excessive evaporation from the leaves when air is admitted, which gives rise to the blister on the under-side of the leaves through the contraction and subsequent enlargement of the tissues. Keeping the high temperature would be likely to aggravate the evil, but the cause is a chill, and that more likely to be given on account of the greater heat during dull or cold weather.

Brompton Stocks (*Kewhurst*).—You appear to have sown the seeds between two and three months too soon. It is not the first mistake of the kind by any means. We have known some plants thus raised to flower in the autumn; a few of those that did not produced magnificent spikes the following year, but the great majority succumbed to frost. Your object should be to grow the plants slowly in hard and rather poor soil in a thoroughly exposed position, and a sufficient distance apart that the sun and air can have free play amongst them. They will then assume a sturdy habit and develop woody stems, in the best condition for resisting frost. If they are grown in loose rich soil in a sheltered position, and also in the least crowded, the plants will be tall, succulent, and tender, to be almost certainly killed in the winter. Hard soil containing lime is the best for the plants in the summer, and even then the growth may be luxuriant towards the autumn, in which case it is a good plan to drive a spade down 4 or 5 inches from the plants and sever the roots, half round each plant at first, doing the other half a week or so afterwards if a further check seems necessary. We have seen the plants established in 5-inch pots, these plunged over their rims in the open ground in the summer, withdrawing them on the approach of frost, and wintering them in cold frames. The end of May or early in June is a good time for sowing seeds of Brompton Stocks in the open air. The plants get quite large enough for standing the winter and flowering in due time. Perhaps you had better sow a little more seed in view of the possible failure of your present plants.

Peach Trees Casting Their Leaves (*H. S.*).—The leaves are injured by the sun acting powerfully upon them whilst wet, the tissues in some parts being practically destroyed, and the points of the shoots in some cases blackened. The fumes given off would to a certain extent cause the leaves to fall, as frequently occurs after fumigation, the leaves of Peaches and Nectarines being very susceptible to injury when growing. The fruits are infested with mildew, which certainly has not been killed by the specific used on one of the Peaches before us, and on the others it has so sunk into the diseased parts as to destroy the tissues to a considerable depth. This, however, may be partly due to the sun acting on the fruit whilst covered with the solution. The growths are very sappy, long-jointed, and pushing laterals at every axil. This would render them more liable to injury; indeed, such growths suffer most from fumes, producing a sort of scorching, and any sudden or severe check causes the leaves to fall. What the trees wanted were more air, less moisture in the atmosphere, and steadier supplies of nourishment at the roots. Lifting would do them much good, saving them from the ill-health and sterility into which, if the shoot before us be a fair specimen, the trees are assuredly drifting. We give you this hint for thoughtful consideration. In the meanwhile ventilate early, leaving a chink for air at the top of the house constantly, enlarging this before the sun acts powerfully on the house, not to lower the temperature, but allow the atmosphere to heat evenly with the increased sun heat. It certainly was not advisable to use the specific in the morning, nor three days in succession. For mildew on Peaches we have found dusting them with flowers of sulphur effective, making sure that the affected parts are reached by rubbing the sulphur on them by means of the fingers. We advise this now, and though it will not restore the damaged parts, it will not cause so much injury as the specific has done, aided by the sun and improper administration.

Soil for Cucumbers Treated with Lime (*A. G. W.*).—The sample of soil contains quite sufficient lime to correct the excess of humus, and give a steady supply of nitrate of lime, which is what the plants really require, and that will come fast enough, as the nitrifying micro-organisms appear exceedingly active, the soil swarming with them. There are also both eelworms and the sclerotia of the smother fungus, *Sclerotinia sclerotiorum*, but as the lime acts on the organic matter they will have a poor chance, especially if you use Little's soluble phenyle, 1 gill (quarter pint) to 3 gallons of soft water, as it kills both the parasites and aids the growth of the Cucumbers, giving value for outlay as a manure. Another good dressing for both eelworms and smother fungus is basic slag, 10 parts or lbs., kainit 5 parts or lbs., bone meal 1 part or lb., sulphate of iron half part or lb. mixed, using 4 ozs. (or 8 ozs. if before planting, forking into the soil) per square yard, washing in moderately. This may be repeated at intervals of about three weeks, supplying nitrogen in liquid form, say nitrate of soda $\frac{1}{4}$ oz. to a gallon of water, taking care not to overdo this, but being guided by the vigour of the plants, it being better to under rather than overdo the nitrate applications. A first-rate Cucumber grower has a tank holding 36 gallons of water, and as this comes in cold into the house he puts into the tank a good handful (about $\frac{1}{4}$ lb.) of nitrate of soda, and lets the whole stand full of water until warmed to the same temperature of the house before watering the Cucumbers with it, or if wanted sooner supplies the requisite amount of hot water. The water only contains about $\frac{1}{8}$ oz. of nitrate of soda per gallon, and he says—his crops verifying the statement—that it is quite strong enough for general use, and the Cucumbers like it, judging by their quantity and colour. We ask that you will use discriminative judgment, not overdosing the plants by using all the things at once, but in moderation, and at varied intervals, for plants like changes of sound food, not surfeits.

Pests Infesting Melon House (*T. K. M.*).—The insects are the common woodlice, *Oniscus asellus*. They are voracious, and fond of most things of a tender nature grown in gardens, especially Mushrooms, seedling Cucumbers, Melons, Tomatoes, roots of Orchids, and more than a taste of luscious fruits. They are very fond of bran. A farmer noticing how they swarmed under empty bran bags thrown on the floor of an outhouse took the hint, and spread the bags on the floors of his Cucumber and Tomato houses at night, for he was a market gardener as well as farmer, and in the morning had some pails of boiling water ready, which one person used, whilst another folded up the bran bags, carried them off, and shook them out in front of the farmyard poultry before they were fed. This plan answered splendidly, the empty bran bags being placed on the floor each evening for a time, and removed early in the morning. Another plan, and very effective, is to procure some old dry half-rotten boards, cut them into convenient even lengths, and place one board on the top of the other near where the woodlice haunt. As the boards do not lie evenly there will be sufficient space for the woodlice to get between them, or if not, form a slight space by placing a small stone at one end, so as to form a cavity. If a little bran be sprinkled on the lower board the woodlice like it all the better. Examine the boards every morning, and if you like to carry them away and spread the contents before poultry there will soon be an end of them, otherwise sprinkle the pests with boiling water. Another good plan is to place a little food, such as boiled Potatoes, bran, or pollard on the ground, in the angle formed by it and the wall, covered loosely with hay, and in the morning pour boiling water thereon. We have known woodlice congregate in the angle of a Mushroom bed wall an inch thick, and one dose of boiling water destroy thousands, without material injury to the Mushroom beds. It answers equally well elsewhere, taking care to bait in places where the boiling water can be used effectively without injury to useful plants.

The Journal (R. R. P.).—We are obliged by your appreciative remark that "the Journal continues to be as instructive and interesting as ever." This is published as applying to our various contributors, and we think they are fairly entitled to this recognition. The Journal varies as gardens vary. These are brighter at one time than another, but the changes rather add to than detract from their general usefulness, and the enjoyment derivable in and from them. Since we know that our literary coadjutors are able, practical, and zealous, we see no reason why the present standard which satisfies so many should not be maintained. Our hope is that it will be improved. The particular subject in which you, as well as others, are interested will be treated upon in an early issue.

Weevil Eating Vine and Peach Leaves (One Perplexed).—This pest, commonly and properly called the black-grooved weevil (*Otiorhynchus sulcatus*), is very widely distributed in England, and appears to be greatly on the increase. Whence it came in your case we are unable to say; but as you saw two last year there were probably many more about, and they increase rapidly from eggs, which give rise to grubs or larvae that feed on the roots of a great variety of plants, the parents preferring cultivated to wild plants. This may account for your receiving a visit from the weevils. The means you employ is one of the best for destroying them, and if persisted in will have satisfactory results, as by killing the weevils their continuing to do damage is prevented, as well as correspondingly hindering recurrence by making increase impossible. You ask, "Do they fly?" If you will look at one with a pocket lens the wing cases will be seen joined, hence flying is out of the question. Crawling, therefore, is their only means of getting about, and they are active enough when in search of food, travelling a considerable distance sometimes nightly, as on Vines and Peach trees. We have traced attacks from a distance of several hundred yards from one spot in one year, the female traversing the space from wild plants to deposit eggs in the soil at the base of Cyclamen corms. The practice you pursue will, if continued long enough, effect a clearance.

Muscat of Alexandria Vine Leaves Discoloured (J. H. S.)—The leaves have every appearance of being infested by *Plasmopora viticola* fungus or downy mildew, but there was neither the mould outside nor the mycelial hyphae of the fungus in the tissues. Indeed, we did not find any vegetable or animal micro-organism in connection with the diseased spots on the leaves. The yellow stains are purely of a chemical nature, such as usually arise in this variety of Grape Vine from an excess of chlorine, which is commonly administered in cheap forms of fertilisers and altogether unsuitable for Vines. This may be corrected by a free use of water as regards the soil, and the plant by supplying nitrogenous or ammoniacal manures, such as nitrate of potash or soda, and sulphate of ammonia. But a good all-round manure is best, say dissolved raw bones, five parts or lbs.; nitrate of potash, three parts or lbs.; sulphate of magnesia, one part or lb.; and air-slaked chalk lime and soot in equal parts by measure, two parts or lbs. mixed, using 4 ozs. per square yard, and washing in moderately. This will give colour and substantial benefit, but it will not restore the scorched and dead tissues to life. There has been some of this certainly caused by allowing the heated air to collect at the upper part of the house, and then air has been admitted, causing a chill or excessive evaporation, which amounts to the same thing. It is a great pity, as the foliage is not bad for Muscat of Alexandria at this time of year, and the more regrettable as it might have been prevented by timely attention to the ventilation. Muscat of Alexandria likes a generous dietary of humus, such as that had from native guano, blood and bone manure, so as to afford a steady supply of nitrogenous nourishment.

Points of Grape Vines Blackened (Vines).—The blackened or browned condition of the tips of the shoots and leaves is caused by the grey mould fungus of the Vine, a well known pest—*Sclerotinia Fuckeliana*. This, however, is the final stage of the fungus, which springs from sclerotia, or small black elongated tubercles, formed on or in the diseased tissues, and there rest during the winter. The form now on the Vine shoots is the conidial or summer condition of the fungus, and known as *Botrytis cinerea*, commonly called the Vine mould. The fungus is partly external, but yours is deeper seated than generally occurs. The disease usually appears on vigorous Vines, and especially those with downy leaves, such as Black Alicante and Gros Colman, its increase being accelerated by a moist and close atmosphere. The best safeguard, therefore, is a freely ventilated atmosphere, and not too much nutrition, such as commonly results from borders of rich materials. We, therefore, advise more air, and only sufficient water at the roots to keep the Vines healthy. The parts affected should be cut away and burned, otherwise sclerotia or black tubercles (externally black lumps of spawn) are formed on or in the tissues, and resting during the winter give rise to the disease in the spring. To arrest the disease you may spray the Vines with a solution of Cordy's red fluid, using a tablespoonful to a quart of water, or a wineglassful (2 fluid ozs.) to 1 gallon. The water must be soft and clear. It suffices to merely cover the growths with the finest possible film of the solution after the sun has left the house, repeating at intervals of about ten days. In the winter dress the rods with a solution of sulphate of iron, 1 lb. to 1½ gallon of water, applying with a brush. This will destroy the spores of the fungus in the crevices of the bark, and not injure the Vines when they are quite dormant. If the disease appears another season when the buds are expanding, at once spray with the Cordy's fluid solution. At the strength named it is usually safe on developed foliage, but it may have a slightly prejudicial effect on very tender and woolly growths, though we have not noticed any, yet it is as well to be careful, and try half strength first, or even a wineglassful of the red fluid to 3 gallons

of clear soft water. We mention this, as Vines differ greatly in susceptibility to injury, and it is easy to try the effect on a small scale before applying the solution on a large one.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*Xchurck*)—2, *Philadelphus coronarius*; 3, probably *Phalaris arundinaria*. The *Rhododendrons* are probably seedlings, possibly of *amabile*. (*W. D.*)—1, *Prunus Padus*; 2, *Kerria japonica flore-pleno*; 3, *Adiantum assimile*. (*G. H. J.*)—1, *Doronicum plantagineum Harpur Crève*; 2, *Aubrietia Leichtlini*; 3, *Silene pendula*; 4, *Omphalodes verna*. (*E. S. Y.*)—1, *Leschanaultia biloba major*; 2, *Alyssum saxatile compactum*; 3, *Berberis dulcis*. (*W. C.*)—Specimen dry, a *Spiraea*, possibly *Thunbergi*. (*Wilts*)—1, *Saxifraga granulata flore-pleno*; 2, *Veronica chamædrys*; 3, name next week; 4, *Nemophila maculata*; 5, *Papaver alpinum*; 6, *Lychnis dioica flore-pleno*.

COVENT GARDEN MARKET.—MAY 19TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½ sieve	0	0	0	0	Lemons, case	11	0	14	0
Filberts and Cobs, per 100lb.	0	0	0	0	Plums, ½ sieve	0	0	0	0
Grapes, per lb.	2	0	3	6	St. Michael Pines, each ..	3	0	8	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Asparagus, per 100	0	0	0	0	Mustard and Cress, punnet	0	2	0	4
Beans, ½ sieve	0	0	0	0	Onions, bushel	2	6	4	0
Beet, Red, dozen	1	0	0	0	Parsley, dozen bunches ..	2	0	3	0
Carrots, bunch	0	3	0	4	Parsnips, dozen	1	0	0	0
Cauliflowers, dozen	2	0	3	0	Potatoes, per owt.	2	0	4	9
Celery, bundle	1	0	0	0	Salsafy, bundle	1	0	1	0
Coleworts, dozen bunches	2	0	4	0	Seakale, per basket	1	6	1	0
Cucumbers	0	4	0	8	Scorzenera, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Shallots, per lb.	0	3	0	0
Herbs, bunch	0	3	0	0	Spinach, pad	0	0	4	0
Leeks, bunch	0	2	0	0	Sprouts, half sieve	1	6	1	0
Lettuce, dozen	1	3	0	0	Tomatoes, per lb.	0	4	0	9
Mushrooms, per lb.	0	6	0	8	Turnips, bunch	0	3	0	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (various) doz.	6	0	36	0	Foliage plants, var. each	1	0	5	0
Arum Lilies, per dozen ..	8	0	12	0	Fuchsias, per dozen	6	0	9	0
Aspidistra, dozen	18	0	36	0	Genista, per dozen	6	0	10	0
Aspidistra, specimen plant	5	0	10	6	Hydrangeas, per dozen ..	9	0	12	0
Azalea, per dozen	18	0	36	0	Lilium Harrissi, per dozen	12	0	18	0
Calceolarias, per dozen ..	4	0	8	0	Lobelias, per dozen	4	0	6	0
Cinerarias, per dozen ..	6	0	9	0	Lycopodiums, dozen	3	0	6	0
Dracæna, various, dozen ..	12	0	30	0	Marguerite Daisy, per				
Dracæna viridis, dozen ..	9	0	18	0	dozen	6	0	9	0
Erica, (various) per dozen	9	0	18	0	Mignonette, per dozen ..	4	0	6	0
Euonymus, var., dozen ..	6	0	18	0	Myrtles, dozen	6	0	9	0
Evergreens, in variety, per					Palms, in var., each	1	0	15	0
dozen	4	0	18	0	„ (specimens)	2	0	63	0
Ferns in variety, dozen ..	4	0	18	0	Pelargoniums, per dozen ..	9	0	15	0
Ferns (small) per hundred	5	0	8	0	„ Scarlet, per doz. ..	4	0	8	0
Ficus elastica, each	1	0	7	0	Spiræa, per dozen	6	0	9	0

Bedding plants and roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.
Anemones, dozen bunches ..	1	6	0	0	Maidenhair Fern, per dozen				
Arum Lilies, 12 blooms ..	2	0	4	0	bunches	4	0	8	0
Asparagus Fern, per bnch.	2	0	3	6	Mignonette, dozen bunches	3	0	6	0
Azalea, per dozen sprays ..	0	6	0	9	Narciss, (various), dozen				
Bluebells, dozen bunches ..	1	0	1	6	bunches	1	3	2	0
Bouvardias, bunch	0	6	0	9	Orchids, var. doz. blooms	1	6	12	0
Carnations, 12 blooms ..	1	0	3	0	Pæony (French), per bunch	0	6	0	9
Eucharis, dozen	3	0	4	0	Pelargoniums, 12 bunches	4	0	8	0
Gardenias, dozen	2	0	4	0	Polyanthus, dozen bunches	1	0	2	0
Geranium, scarlet, doz.					Pyrethrum, dozen bunches	1	6	3	0
bunches	4	0	6	0	Roses (indoor), dozen ..	0	9	1	6
Iris (various), doz. bunches	6	0	12	0	„ Tea, white, dozen ..	1	0	2	0
Lilac (English), per bunch	0	6	1	0	„ Yellow, dozen (Niels)	1	6	4	0
Lilac, White (French), per					„ Red, dozen blooms ..	1	6	4	0
bunch	3	6	4	0	„ Safrano (English), doz.	1	0	2	0
Lilium longiflorum, 12					„ Pink, per dozen	4	0	6	0
blooms	2	0	4	0	Smilax, per bunch	5	0	7	0
Lily of the Valley (French),					Tuberose, 12 blooms ..	1	0	1	6
per bunch	1	0	1	6	Tulips, dozen bunches ..	2	0	6	6
Lily of the Valley, 12 sprays,					Violet Parme, per bunch ..	3	0	4	0
per bunch	0	6	1	0	„ per doz. bunches ..	1	0	1	6
Marguerites, 12 bunches ..	2	0	3	0	Wallflowers, dozen bunches	1	6	4	0



TURNIP CULTIVATION.

HOWEVER opinions may differ as to the value, or, rather, we should say the importance, of the Turnip crop to the average farmer, there can be no disputing the necessity for growing it well

if it is grown at all. And in this connection we may observe that it is a crop which lends itself to a forcing system of cultivation; it is rather an expensive crop up to a certain point, and by the aid of well-balanced manures prodigious crops may be grown with a fair amount of certainty. This applies more particularly to the Swedish variety, common Turnips when overgrown often being of very little value as food.

In the first place, what is the best time for sowing Swede Turnips? The time varies very much in different climates, but a good test is the temperature of the surface soil; when, on a sunny day, the hand can be held near the surface and feel a distinct warmth from that surface, Swedes may be safely entrusted to it. We all like to have a few early Swedes for use in the yards before Christmas, and the earliest sown are generally the heaviest crop; but we must not forget that the Turnip is a plant which cannot bear severe checks, so it is advisable to be guided by temperature rather than the almanack. A few acres may be sown experimentally in May, but, generally speaking, from June 1st to June 20th is the time for drilling Swedes.

As the Swede loves warmth we find it does not do well at high altitudes or on badly drained land, neither can it be grown on very poor hungry sand. On the former the Scotch and yellow hybrids are grown in place of Swedes, and on poor sand nothing is better than the Green Globe or Lincolnshire Red.

The most important thing of all is the texture of the soil; the Turnip produces exceedingly small seeds, so small that twenty-three are taken to make a grain, and upwards of 160,000 to the pound. Now it is obvious that the small rootlets put forth by so small a seed must have equally fine grains of soil amongst which to seek and find the food for the plant, and it would be only courting failure to sow such seed amongst earth which consisted of clods of different sizes, but none of them smaller than peas. A fine mould is an absolute necessity, and is the first thing the farmer aims at. Turnips invariably do well if a cloud of dust follows the drill, and the heat affects both horse and man.

Whether it is best to drill on ridges or on the flat is best left to the custom of the locality. On good easy working land we prefer ridging, for if manure is used it can be placed more directly beneath the plant. On strong soils, if there is a fine mould on the surface, it might be unwise to ridge, because the under soil might turn up very rough, and with a fine surface it were best to let well alone. Taking a look round different districts it will be found that ridging prevails on the best Turnip soils, that is where good tilth is the rule, and flat drilling is the custom on stronger and colder lands where a good mould is uncertain of attainment and the Turnip crop a precarious one.

Whether ridged or drilled we would not have the rows less than 26 inches apart for Swedes, and we would sow 3 lbs. of seed per acre. This is twice as much as some farmers sow, and no doubt many would say that it is a waste of seed, but we see others who sow less occasionally with only half a plant, and in constant anxiety if the Turnip fly be on the warpath; and there are not many seasons when he does not succeed in doing some damage.

The number of plants required for a crop, taking the rows at 26 inches and the plants at 10 inches apart, would be about 25,000 per acre. This number represents but a sixth of a pound of seed, so that by drilling 3 lbs. per acre we are apparently wasting seventeen parts out of every eighteen; but in order to get a regular plant, if the seed were sown at regular intervals of 1 inch, and then struck out so as to leave every tenth plant, $1\frac{1}{2}$ lb. per acre would be sacrificed; and if we allow another $1\frac{1}{2}$ lb. for deficiencies of growth and insect enemies, we do not think the allowance will be found too great. There is another point about having a fairly thick plant in the early stages—they seem to keep each other warm and grow faster; the chief drawback is that they must be singled as soon as ready, to prevent damage from overcrowding.

If well decayed farmyard manure be available this, at the rate of twelve loads per acre, with 5 cwt. of superphosphate (26 per cent.

soluble) per acre, should grow a satisfactory crop of Swedes. On heavy soils the manure should have been ploughed in during the winter, and the phosphate can now be drilled with the side. A combined manure and seed drill is used for this purpose.

As before observed, where the land is suitable for ridging the manure can be put on between the ridges and the phosphate sown broadcast at the same time; they are then split in together, and the seed drilled at once. It is very necessary to drill the same day, as a heavy rain coming in the night might make the ridges very sad, and too stale to drill well.

If farmyard manure is not available good Swedes can be grown with artificials. We have succeeded well with the following mixture:—100 lbs. nitrate of soda, 300 lbs. superphosphate, and 200 lbs. steamed bonemeal per acre. The two best varieties of Swedish Turnip to grow are Monarch for lighter soils and storing, Golden Melon for heavy soils.

WORK ON THE HOME FARM.

Another dry cold week, without absolute frost; but some of the nights have been very cold, with a temperature little, if anything, above freezing point. The last month has been splendid for twitching, and the fallows are practically clean, and ready for Turnips all round, so our horses should not have a hard summer, and we can have little anxiety as to the successful completion of work, until harvest at any rate.

Spring corn looks surprisingly well; it probably never looked better in mid-May, and given a showery June we should have some fine crops. Wheats have again fallen off, and unless a great improvement takes place during the next month they will be below the average. They appear to need rain, rather unusual for Wheats at this period.

The cold which has checked vegetation has helped off the old stocks of Potatoes. Trade has been quite brisk lately, and though the price has not risen much we have been glad to realise them at the figures now prevailing.

Thousand-headed Kale has come up well, and now is in second leaf. Some people advocate leaving it very thick, but we shall single ours just as we do the Swedes. The plants do not come to ripeness quite so early, but they produce much more food.

Pastures have fallen off, and want a nice rain (it is falling as we write, and hope it may continue). We find it a good plan to arrange for one field always to be clear of stock; for instance, we have three fields of grazing seeds, we divide our sheep into two lots, not three, so that we always have one field clear of mouths, and both freshening and growing sweeter. Sheep love a change of pasture. With the pastures rather bare a little oil cake will well repay the outlay; the sheep will more than repay the cost, and 30s. per ton is not too high a value to put on the gain to the land in fertility for each ton of cake used.

It is not too easy a matter to breed good horses. We may, therefore, complain of hard lines when a mare drops twin foals (dead) for the second year in succession, and another mare so far follows her example as to do the same thing for the first time. Twin lambs are a blessing; twin calves may be, but twin foals are an unmitigated nuisance when alive, and of no use dead.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1897. May.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.
Sunday . . . 9	30.178	52.2	44.8	N.W.	51.3	59.9	46.3	111.3	40.8	—
Monday 10	30.119	52.9	45.9	N.W.	50.4	58.6	41.0	102.5	34.1	—
Tuesday 11	29.908	44.6	37.3	N.W.	50.2	54.3	34.8	101.4	30.9	—
Wednesday . 12	30.070	44.8	36.9	N	49.1	50.9	34.4	102.6	29.4	—
Thursday .. 13	30.265	48.1	41.6	N.	48.1	50.4	33.9	93.9	27.1	—
Friday 14	30.306	51.1	43.1	N.W.	47.9	59.6	36.1	97.8	29.4	—
Saturday .. 15	30.422	58.9	50.6		50.0	65.9	46.7	101.1	39.4	—
	30.181	50.4	42.9		49.6	57.1	39.0	101.5	30.0	—

REMARKS.

9th.—Sunny almost throughout, but cloudy at times in afternoon.
10th.—Brilliant early; frequently cloudy after 9 A.M., and spots of rain at 6 P.M.
11th.—Bright early; generally cloudy in afternoon; thunder at 5 P.M., and spots of rain in evening.
12th.—Generally cloudy with occasional sunshine.
13th.—Overcast early; alternate sunshine and cloud during day.
14th.—Fair all day, with a good deal of faint sunshine in morning.
15th.—Bright sun till 11 A.M., mild and pleasant after, with occasional sunshine; clear night.
A rainless and cold week—the 11th to 13th especially so—thus confirming the repute of these days in France as those of the "icy saints."—G. J. SYMONS.

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SINGLE DOZENS, 5s., post free (13 to the Dozen).
The SIX DOZENS for 25s., post free.

SAMPLE DOZENS such as we send out at the above prices—
Grand Plants:—

Show and Fancy Varieties.

Earl of Ravensworth, Mrs. Langtry, Mrs. Gladstone, John Walker, Chieftain, Muriel Harry Keith, Warrior, George Barnes, Lottie Eckford, Prince Henry, S. Mortimer.

Cactus Varieties.

Harmony, Gloriosa, Beauty of Wilts, Beauty of Eynsford, Earl Pembroke, Mrs. Barnes, Lady Henry Grosvenor, Blanche Keith, Matchless, Marquis, Mrs. Turner, Mayor Haskins.

Single Cactus Varieties.

Alice Lee, Anne of Gelerstein, Argyle, Bruce, Earl Ravenswood, Jeanie Deane, Lady Rowena, Lady Olare, Queen Mary, Rob Roy, Pirate, Brenda.

Pomponé Varieties.

Admiration, Bacchus, Fashion, Grace, Lilian, Irene, Emily Hopper, Little Dorrit, Vivid, Mars, White Aster, Fair Helen.

Single Varieties.

Amos Perry, Cleopatra, Chilwell Beauty, James Dobbie, Kitty Lutea Grandiflora, Miss Henshaw, White Queen, Demon, Jessie (9s.), Butterfly, Florrie Fisher.

Decorative Varieties.

Duchess of York, O'Neill's Gem, Claribel, Countess of Pembroke, Snowflake, Harry Freeman, Mahala Sheriff, Oban, Oscar, Lancelot, Marchioness of Bute, St. Catherine.

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Award of Merit, R.H.S., and First-class Certificate, N.C.S., 1896

Strong Plants in Pots, now ready, 7/6 each.

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Journal of Horticulture.

THURSDAY, MAY 27, 1897.

THE TEMPLE SHOW.

THOUGH it does not seem very long since the Benchers of the Inner Temple first placed their charming gardens at the disposal of the Royal Horticultural Society for the purpose of holding a summer show, it is actually ten years. To-day (Wednesday) the tenth Exhibition opened, and as a whole the display is certainly equal to any of its predecessors, beautiful as these have been. In some respects the feast of flowers is better than ever, while the number of exhibitors has materially increased.

Statistics are not, generally speaking, particularly interesting, but the figures relating to the Show of 1888 and that of 1897 are worthy of a little study, for to an extent they convey an idea as to the growth of the Royal Horticultural Society during the last decade. Referring to our report of the initial Exhibition, it is found that there were requisitioned two tents, of which one measured 200 feet by 30 feet and the other 160 feet by 60 feet, and consequently covering an area of nearly 16,000 square feet.

Now look for a moment at the magnitude of the exhibition of to-day, when practically 26,000 square are canopied by the five marquees, the respective dimensions of which are 150 feet by 60 feet; 120 feet by 40 feet; 170 feet by 28 feet; 150 feet by 28 feet, and 110 feet by 28 feet, the three latter running along the broad walk which is parallel with the Thames Embankment. Of course, much of this space is taken up by the paths, but there are, to be precise, 11,800 square feet occupied by exhibits.

This seems enormous, but it is by no means too much; and if everyone had been allotted the space for which they asked a further 10,800 square feet would have been necessary. In other words, almost double the amount of ground could have been covered than is now actually the case. As an example of how some firms have been reduced mention may be made of one who asked for 1600 square feet and secured 250, while another wanting 300 had 75.

At first glance such wholesale reduction may appear rather hard; but the Society can only have one object—the most meritorious and diversified display. It is obvious that if each exhibitor were allowed all the space he asked for

there would be, with some at least, a difficulty in filling it without enormous repetition. Looking at flower shows from an educational point of view, the excessive duplication of plants or flowers is the reverse of appropriate, as the highest object is lost; and besides, the public soon tire of such masses as may be seen in the market.

Comparing last season's exhibition with this we see a few changes for the better in ideas, though in the majority of cases there is no deviation. Nor under the circumstances now existing can there be, for narrow tables are not ideal places for original arrangements. One feature we are very glad to see, and that is the return, after a brief secession, of Baron Schröder's unrivalled Orchids, which are a superb spectacle in themselves. From the largest tent let us turn for a moment to the smallest, where Messrs. Carter & Co., who have in a unique and charming manner erected a floral trophy in honour of the Queen's Diamond Jubilee, and in so doing have provided perhaps the most novel exhibit in the show.

From generalities we may now come to the tents, and what they contain, ere giving specific references to the plants, flowers, fruits, and vegetables. As is customary, the largest tent comprises the most effective display by reason of its height and width. Here are to be seen superb Roses in pots, artistically displayed; fragrant Malmaison Carnations; stately drooping Palms; delicately hued Caladiums; handsome Clematises; Peaches and Nectarines in pots bearing their luscious burdens, besides Orchids, rich in colour, diversified in form, and priceless value. It is a floral paradise, where quality is supreme, and quantity is ample.

As one passes into tent No. 4 one is met with richly coloured Begonias, plants new and rare, blue Leschenaultias, ducal Carnations, beautiful Calceolarias, brilliant Cannas, as well as Orchids, and the perfume of Roses. From one end to the other, on centre and on side tables, there is much that will interest and enforce the admiration of every visitor.

A breath of freshness comes with the rockwork in the third marquee over the broad walk; then there are hardy flowers of almost innumerable kinds, more Roses and Carnations, graceful Ferns of many forms, a gigantic and splendid display of Reading Gloxinias, which so clearly show what may be done with care and judgment in methods of culture.

Delicacy of colouration is the predominating feature of the Gloxinias from Chelsea, while the Streptocarpuses from the same source exhibit such remarkable improvements as would not have been dreamt of ten years ago. Putting tents Nos. 1 and 2 together we find beauty and utility combined to a degree that is seldom seen. The flowers are beautiful, the fruits and vegetables are magnificent. There are Peas and Beans in pots and boxes clothed with well-developed pods; Tomatoes literally roped with bright fruits; Peaches, Nectarines, Grapes, Figs, Apples, and Pears, as well as others, in the best possible condition, which reflect the very highest credit on their respective growers.

For the benefit of many readers who may not be familiar with the Temple Show we give (on the opposite page) from the Society's schedule a ground plan of the Inner Temple Gardens as they are to-day. From this visitors may know in which direction to go for any particular exhibit they wish to see. Below will be found a report of the major portion of the exhibits that are shown, and it need only be said here that in the disposal of the exhibits in the several groups, and in general high quality, the show exceeds all its predecessors.

ORCHIDS.

As was hinted in the introduction to the report, the Orchids make a bright, interesting, and rich display. The central table of the large marquee is entirely devoted to these plants, as well as a considerable portion on the middle staging in tent No. 5. When it is said that Sir Trevor Lawrence, Bart., Baron Schröder, Messrs. F. Sander & Co., W. Lewis & Co., and J. Cypher, with Major Joicey, Earl Percy, W. S. Ellis, Esq., and others, are represented, it will be known that there is much that is honestly worth the seeing. It is a matter for regret that Messrs. J. Veitch & Sons, Ltd., and R. J. Measures, Esq., do not exhibit on this important occasion, for they always stage plants that merit attention, either by reason of their rarity or their splendid culture. Perhaps in coming years they may be induced to contribute to, and so enhance, the beauty of the Show.

The town of St. Albans has during recent years become celebrated for its Orchids, owing to the prominence of Messrs. F. Sander & Co. in the Orchid world. Their exhibit is always of very great merit, and never more so than on the occasion now particularly under notice.

They are showing in quantity, while quality is by no means absent. It is impossible for us to name all those on the stand that deserve recognition, so we content ourselves with calling attention to those only that are particularly conspicuous, and amongst them may be mentioned *Dendrobium Dearei*, *infundibulum*, *Dalhousianum*, *Sobralia Veitchii*, *Odontoglossum crispum* and *polyanthum*, *Cattleyas Mendeli*, *Mossiae*, and *Skinneri*, *Calanthe Laucheana*, *Laelio-Cattleya The Queen*, *L. C. D. S. Brown*, *Laelia purpurata*, and others of the highest quality.

Though the exhibit staged by Mr. W. Buckill, gardener to Malcolm S. Cooke, Esq., Kingston Hill, is considerably smaller than the one just named it is very creditable, for the plants are clean, healthy, and as a rule well flowered. We might call especial attention to *Laelia purpurata*, *Cymbidium Lowianum*, *Cattleya Mossiae*, *Maxillaria Sanderiana*, *Cattleya Mendeli*, *Masdevallia Harryana*, *Dendrobium thysiflorum*, *Cypripedium villosum*, *C. bellatulum*, *C. Chamberlainianum*, *Cattleya Lawrenceana*, and *Oncidium macranthum* as being of quite average merit.

It is essential in an event of such importance as this that the south-western counties should be represented, and Mr. J. Cypher of Cheltenham worthily occupies the position. There is either something in the air of the Gloucestershire town or in the system of procedure in their culture that places a stamp of excellence on Mr. Cypher's Orchids which it is very pleasing to see. He does not come to London every day, but when he does it is with something really good. Very beautiful are *Laelia purpurata Meteor*, *L. p. Distinction*, *L. p. Russelliana*, *Thunia alba*, *Cattleya citrina*, *C. Mossiae gigantea*, *C. Mendeli superba*, *C. Mossiae splendens*, *Dendrobium infundibulum*, *D. Parishii*, *D. nobile majus*, *Odontoglossum crispum* in splendid variety, *O. Pescatorei virginalis*, light and dark coloured *Miltonia vexillaria*, *Tricopilia crispa superba*, as well as *Cypripediums*, *Masdevallias*, and others.

Last year hundreds of visitors were much disappointed when they discovered that Baron Schröder, The Dell, Egham, was not exhibiting, and many were the expressions of regret. This year the scene is changed, for the Baron is very strongly in evidence. Mr. H. Ballantine, the gardener, is a master in the art of Orchid cultivation, as everyone knows who has seen the plants at home. Look now at the splendid growth, the handsome flowers of the purest hues, and you will see Orchids as they should be grown. The staging, too, is very effective, for it is done so that the superb spikes of the matchless *Odontoglossums* may be seen with ease, while there is no suspicion of the crowding that is occasionally apparent in other portions of the exhibition. Singularly charming are *Odontoglossums elegans superbum*, *crispum mirabile*, *Halli leucoglossum*, *Miltonia vexillaria*, *Vanda teres*, *Odontoglossum crispum Sanderianum*, *O. lateo-purpureum Vuylstekeanum*, *Laelia purpurata*, *Thunia Veitchiana*, *Cattleya Mendeli*, *C. Mossiae*, *Dendrobium Bensoniae*, *Cypripedium bellatulum*, *C. George Keltie*, *C. callosum Sanderæ*, and many others of equal merit, besides a magnificent plant of *Ceologyne Dayana*.

Mr. W. H. White, grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, is to the fore with Orchids of botanical interest. The stand is one of considerable size, and many of the specimens are quite unique. Though several of these are not of particular beauty, they create a wonderful amount of interest, and their place at the Temple would be difficult to fill if the loyal President of the Royal Horticultural Society were to cease showing. Visitors never seem to become tired of examining such plants as *Epidendrum Mooreanum*, *Aëranthus zygopetaloides*, *Disa racemosa*, *Epidendrum Endresi*, *Stenoglottis longifolia alba*, *Oncidium pubes*; while *Cypripediums Euryale*, *Swannianum superbum*, *Eleanor superbum Lawrenceanum*, *ciliolare*, *Mastersianum*, *Stonei magnificum*, *Curtisi*, *Fraseri*, *bellatulum*, *niveum*, and *barbatum*; *Oncidium concolor*, *Odontoglossums citrosum*, *crispum*, *vexillarium*, *Halli*, *Andersonianum*, and *mulus*; *Dendrobiums polyphlebium Emerici* and *Bensoniae*; *Cattleyas Mossiae* in variety, *Skinneri*, *Mossiae Wagneri*, and *labiata Mossiae*; *Laelia purpurata*, *Thunias Brymeriana* and *Marshalliana*, superb *Masdevallias* provided flowers in varying forms and colours that are so necessary to the effective display.

The majority of horticulturists would in all probability designate Mr. Geo. Wythes, gardener to Earl Percy, Syon House, Brentford, a vegetable and a fruit grower alone; but those who visit the show during the three days that it will be open will see Orchids such as would be a credit to a specialist. There are, amongst others, *Laelia purpurata*, *Vanda teres*, *Cymbidium Lowianum*, *Laelia tenebrosa*, *Brassia verrucosa*, *Miltonia vexillaria*, *Dendrobium phalaenopsis Schroderiana*, *Thunia alba*, *Dendrobium chrysotoxum*, *Cypripedium Lawrenceanum*, *C. Sedeni candidulum*, *Dendrobium thysiflorum*, and beautiful forms of *Cattleya Mossiae*, all of which are displayed in an artistic manner. To aid in making the Orchids more prominent small Palms and Ferns have been judiciously employed.

Odontoglossums as staged by Wellbore S. Ellis, Esq., Hazelbourne, Dorking, are surprisingly beautiful, and show what good culture, combined with good taste will effect. Many of his varieties of *O. crispum* are good, but unfortunately the specific names could not be read. Besides these Mr. Ellis has staged *vexillarium*, *citrosum*, and a few others.

Mr. E. Carr, gardener to W. A. Gillett, Esq., Fair Oak Lodge, Bishopstoke, Hants, exhibits a collection of Orchids, amongst which the splendidly grown plants are finely flowered. The growths are clean and the colours in the blooms very clear. *Odontoglossums vexillarium* in variety, *crispum* in charming selection, fine *citrosum*, *Pescatorei*, and *maculatum*, *Laelia purpurata* of good form, pale and deep *Cattleya Mossiae*, with *Cypripedium niveum*, and others. Small Ferns as a groundwork enhance the general effect.

Brightly beautiful is the arrangement of Mr. W. N. Young, Orchid

grower to Sir Frederic Wigan, Clare Lawn, East Sheen. The abundant flowers are very pure in colour, of good shape and splendid substance, proving good culture. There are of more than common merit *Cattleya Mossiæ*, *C. Mendeli*, *C. Lawrenceana*, *Miltonia vexillaria*, *Cypripedium lævigatum* and *Lawrenceanum*. *Odontoglossum* Golden Sheen, crispum in variety, *Pescatorei*, and *Wilckeanum*, *Phalenopsis grandiflora*, *Aërides Fieldingi*, *Cattleya superba*, *Dendrobium Parishii* and *Dearei*, *Cattleya Skinneri virginalis*, *Dendrobium McCarthiae*, *Cymbidium Lowianum*, and *Cypripedium Gertrude Hollington*, all effectively staged.

Mons. A. Piret, Argenteuil, shows *Cattleyas Mossiæ alba*, *M. a. vestalis*, *M. a. variabilis*, and others. Mr. King, gardener to R. Brooman White, Esq., Ardarroch, shows a superb form of *Odontoglossum crispum* named *Starlight*. It is a variety of the first merit. Mr. Peeters Brussels, shows *Miltonia vexillaria virginale*, *Odontoglossum crispum* *Petersi*; and Mr. P. Blair, gardener to the Duke of Sutherland, Trentham, *Odontoglossum crispum* *Princess of Wales*. Mons. Hye, Leysen, Ghent, is represented by several Orchids of merit.

The arrangement of exhibiting adopted by Messrs. Lucien Linden, Brussels, cannot be said to be particularly elegant, there being far too

The metropolitan area is worthily represented in the Orchid section of this magnificent show, and Messrs. W. L. Lewis & Co., Southgate, contribute in a most praiseworthy manner. They are showing *Oncidium varicosum Rogersi*, *Lælia purpurata bella*, *Oncidium macranthum*, *Cypripedium Gertrude Hollington*, *Miltonia vexillaria*, *Cattleya Mossiæ Perfection*, *Lælia purpurata Millsiana*, *Cattleya Mossiæ* in variety, *Cypripedium Aylingi*, *Cattleya Mendeli Madonna*, *Masdevallia Harryana*, *Lycaste Deppei*, and *Lælia purpurata Rossiana*.

Mr. J. Clarke, gardener to Ludwig Mond, Esq., The Poplars, Avenue Road, Regent's Park, is represented by a small stand of Orchids, comprising *Cœlogyne Dayana*, *Odontoglossum citrosum*, *Lælia purpurata*, *Cattleya Mossiæ*, *Epidendrum vitellinum majus*, and *Odontoglossum crispum*. Interspersed amidst the Orchids are small *Ferns* and *Asparagus*.

Odontoglossums are the backbone of the exhibit from Mr. W. Stevens, gardener to W. Thompson, Esq., Walton Grange, Stone, Staffs. These are *O. crispum waltonensis*, *O. c. Annie*, *O. excellens Thompsoni*, *O. Wilckeanum elegans*, *O. W. nobilior*, *O. luteo-purpureum hystrix*, *O. sceptum aureum*, and some well-grown plants of the beautiful

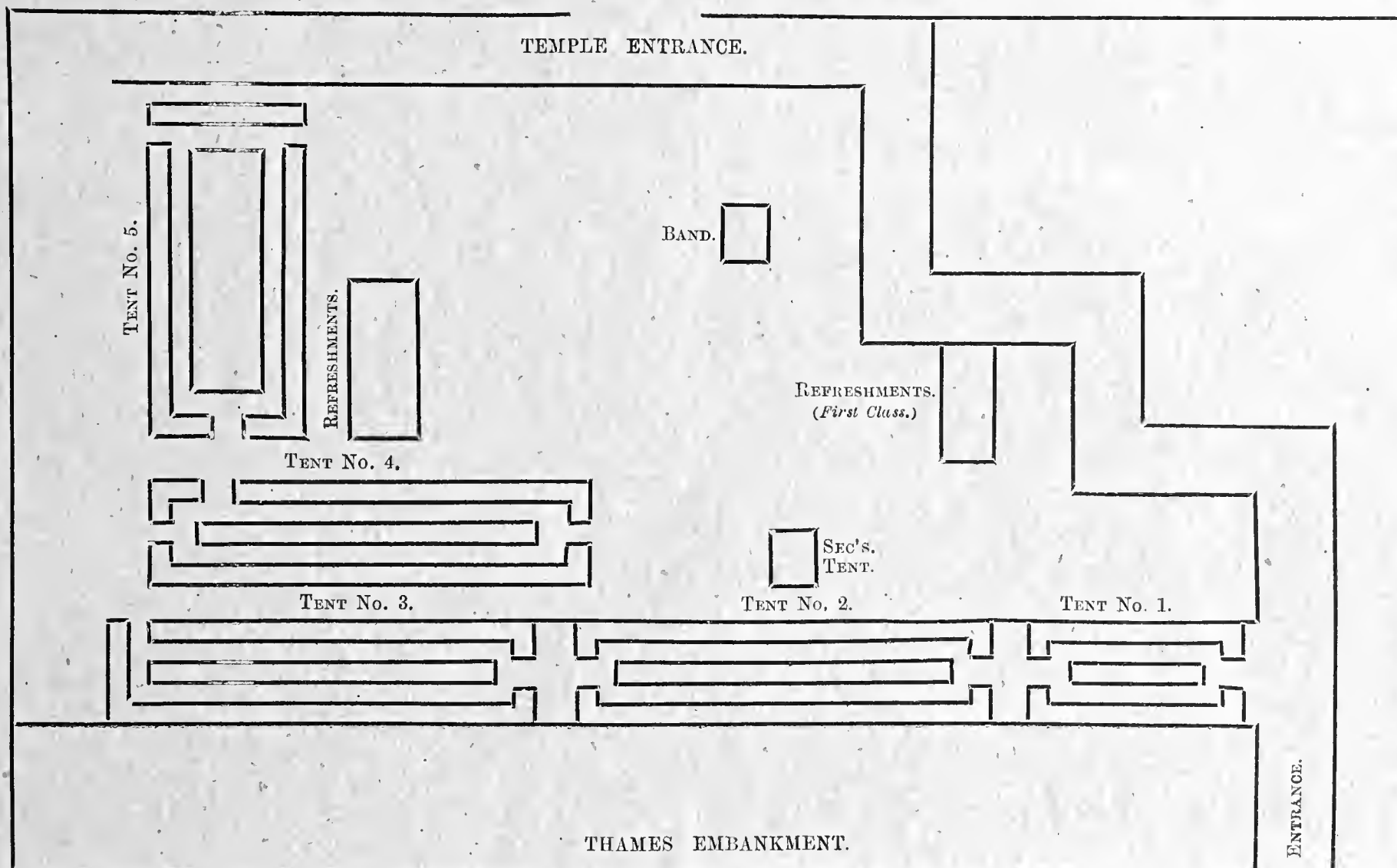


FIG. 90.—PLAN OF THE R.H.S. FLOWER SHOW, INNER TEMPLE GARDENS, MAY 26TH, 27TH, AND 28TH.

much furnishing moss on view. The plants are good, and the flowers are excellent, the effect being considerably minimised by the system of staging just referred to. Particularly good are *Cattleya Mossiæ coerulescens*, *C. M. formosa*, *C. M. Princess of Wales*, *C. M. Mathoniae*, *C. M. Empress Queen*, *C. M. flammea*, *Odontoglossum crispum*, *President Faure*, *O. c. Reine des Belges*, *O. Pescatorei Imperiale*, together with other varieties of great beauty.

Mr. T. Stafford, gardener to Fred Hardy, Esq., Tyntesfield, Ashton-on-Mersey, has a small collection of Orchids, in which quality largely preponderates over quantity. Prominent amongst others are *Cattleya Schilleriana*, Hardy's variety, *C. Mossiæ*, *Lælia purpurata Backhousiana*, *Odontoglossum vexillarium punctatum*, *O. citrosum*, *Cypripedium callosum Sanderæ*, *C. Goweri magnificum*, *Odontoglossum crispum*, and *Dendrobium Bensoniæ*.

Messrs. Charlesworth & Co., Heaton, Bradford, are represented by a very beautiful collection of Orchids, all of which have been splendidly grown. There are flowers of delicate hues and others of the richest and most decided colours on strong, healthy specimens effectively staged. *Cymbidium Lowianum*, *Lælia purpurata*, *Cœlogyne pandurata*, *Cattleya Mossiæ marginata*, *Odontoglossum crispum magnificum*, *Dendrobium Bensoniæ*, *Odontoglossum Pescatorei*, *L'immaculée*, *O. P. Burkinshaw's variety*, *Lælio-Cattleya Lady Wigan*, *Odontoglossum excellens*, *Lælia L. L. L.*, *Brassia maculata grandiceps*, *Odontoglossum crispum The Prince*, *Epidendrum vitellinum majus*, *Cypripedium barbatum*, and *Odontoglossum vexillarium* are very fine.

Cochlioda Noezliana. Mr. H. J. Chapman, gardener to R. I. Measures, Esq., Cambridge Lodge, Camberwell, shows *Cypripediums Chapmani*, *C. C. magnificum*, and *C. Rhembka*, all hybrids of merit.

If there had been a few more flowers at the disposal of the arrangers, Messrs. J. Backhouse & Son, York, would have had one of the most effective exhibits in the whole exhibition. As it is the idea is a charmingly original one, but the highest effectiveness is lost for want of flowers. *Sobralias*, *Odontoglossums*, *Cypripediums*, *Cattleyas*, *Miltonias*, *Thunias*, *Azaleas*, *Lælias*, with *Palms*, *Ferns*, and other foliage and flowering plants are cleverly utilised in the combined arrangement.

A few Orchids are shown by Mr. F. J. Thorne, gardener to Major Joicey, Sunningdale Park, comprising *Miltonia vexillaria*, *Dendrobium formosum giganteum*, and *Anguloa Clowesi*, all magnificently grown. Messrs. J. Cripps & Son, Tunbridge Wells, send two pans of *Cypripedium caudatum*.

ROSES.

If any evidence is yet wanting of what can be done with a Rose tree in a pot, it may be obtained by a visit to the Temple Gardens. Those who saw the first show ten years ago will doubtless notice some of the same varieties to-day as figured conspicuously then, but they will also see marks of advancement in the Rose world. No *Crimson Ramblers* displayed their sprays of brightness at the first Temple Show, and though the praises of Mr. C. Turner's introduction have oft been sung, it is not too much to say it is distinct among the many features of the

exhibition. There are Ramblers formed in arches, and Ramblers as standards, while one also notices them as bright clusters of bloom on dwarf plants.

The exhibit of Messrs. Paul & Son, Cheshunt, is formed of superb examples of Mrs. John Laing, small standards of Crimson Rambler, with *Maréchal Niel* (white and yellow), Ulrich Brunner, *Violette Bouyer*, Marchioness of Londonderry, Juno, Beauty of Waltham, and the new Carmine Pillar. Standards of Madame de Watteville and others are dotted here and there in the extensive group which occupies a capacious corner. The large plants are so arranged as to present an undulating surface, and the whole displays the numerous pleasing forms in which Roses may be cultivated in pots, and does the Cheshunt firm great credit.

Four hundred square feet is a large place to make beautiful with pot Roses, but Mr. Chas. Turner, Slough, has done it; and done it in a way that is creditable to him. Only light coloured and crimson varieties are used, and these blend in happy harmony. Crimson Rambler, already referred to, forms the sum total of brightness, and other varieties set it off to advantage. As arches, standard and dwarf specimens is the beauty of the Rambler fully seen, and intermingled with it are superb plants of Mrs. John Laing, Ulrich Brunner, Juno, Celine Forestier, Edith Gifford, La France, Marchioness of Londonderry, Madame Lacharme, *Violette Bouyer*, Camille Bernardin, and *Perle d'Or*. This mass of Roses is broken in outline, and in the arrangement the art of a decorator is apparent.

Messrs. William Paul & Son, Waltham Cross, have a splendid group of Roses near to the entrance of the big tent. Crimson Rambler is well displayed in pots, as also are Crimson Queen, *Merveille de Lyon*, Mrs. John Laing, *Gloire Lyonnaise*, *Triomphe de Caen*, Ulrich Brunner, Caroline Testout, Spenser, Her Majesty, Danmark, and Caroline Testout. Among the cut blooms are several charming novelties, including Empress Alexandria of Russia (quite a new colour), Medea, White Lady, and Enchantress. Then there are fine blooms of such popular favourites as *Maréchal Niel*, Clio, Victor Verdier, Jean Ducher, and Fisher Holmes. Over eighty varieties are included in the group, which is altogether of superior merit.

Mr. W. Rumsey, Waltham Cross, is represented by Roses of fine quality. The plants of medium size are well suited for arranging on a table, and it would be difficult to give too much praise to the specimens of Crimson Rambler, Climbing Earl of Pembroke, Mrs. Rumsey, La France, Climbing Star of Waltham, Madame de Watteville, *Souvenir d'un Ami*, Magna Charta, Edouard Morren, Grace Darling, Peach Blossom, and Albert Page. Along the front are cut blooms in pleasing variety, including *Maréchal Niel*, Niphetos, Ulrich Brunner, Charles Lefebvre, Beauty of Waltham, The Bride, Dr. Andry, Baroness Rothschild, Madame Victor Verdier, and *Souvenir d'un Ami*. Taste in arrangement is everywhere apparent in the formation of this group.

Mr. G. Mount's Roses are well known to visitors to the Royal Horticultural Society's meetings, but to-day the famous Canterbury grower has surpassed his former efforts. His plants of Crimson Rambler are simply magnificent, and arranged along the back of the stands of cut flowers they have a most charming effect. Cut blooms are no less meritorious. Noticeable amongst others are Madame Gabriel Luizet, Catherine Mermet, Niphetos, Mrs. John Laing, The Bride, Ulrich Brunner, Duke of Wellington, Caroline Testout, Lady Mary Fitzwilliam, La France, Charles Lefebvre, Jean Ducher, Earl of Dufferin, Anna Olivier, and Annie Wood.

PLANTS AND FLOWERS.

Entering the large marquee at the Temple entrance the visitor's attention is at once directed to the fine exhibit from the nurseries of Messrs. Wills & Segar, South Kensington. The firm maintains its high reputation for decorating, and set in the group in artistic form are rare plants, including *Alcassia Rodrigueziana*, *Dracena Goldiana*, *Heliconia illustris*, *Anthurium crystallinum*, *Aralia nymphaefolia*, *Alocasia metallica*, *Phrynium variegatum*, and *Kentia Canterburyana*. A margin along the front is formed of *Selaginella*, and tastefully interspersed amongst the Palms and fine-foliage plants are Ferns in pleasing variety, the whole making up a charming group.

There is little need to inquire whence come the Clematis which form a distinct feature adjoining the above exhibit. They are old acquaintances at the Temple Show, and this year Messrs. Richard Smith and Co. of Worcester show quite up to their usual standard. This means that they are excellent, and diversity is formed by fine trained specimens comprised of such varieties as Lord Derby, Blue Gem, Marie Lefebvre, Sensation, Mrs. George Jackman, Princess of Wales, Countess of Lovelace, Lawsoniana, and *Gloire de St Julien*. Whites, blues, and purples are included in the foregoing, and again the Worcester Clematis are living examples of the beauty of this plant when grown under such conditions.

Near at hand is a group of plants staged by Mr. W. Iceton, Putney, in which are to be seen examples of good culture and taste in arrangement. The background is formed of elegant Palms and Acers, interspersed with small groups of *Lilium Harrisii*. Then come clumps of *Azeala mollis*, and masses of Lily of the Valley peeping from a thicket of Maidenhair Ferns. Any tendency towards flatness is done away with by Caladiums, Crotons, Dracenas, Ficus, and Pandanus which stand up above the ground line, and in every plant may be noticed the signs of high quality and good culture.

At no other show in the country are Caladiums represented in such excellence and variety as at the Temple. This year there is further proof of it, and the group staged by Messrs. J. Laing & Sons, Forest

Hill, is well worthy of the firm's reputation. Plants with huge leaves form the background, and tapering down to the front they gradually decrease in size. Not so in quality and brightness of colouring, which are unique throughout. Conspicuous in the exhibit are candidum, Mrs. Harry Veitch, Rose Laing, C. E. Dahle, Botafoyo, Baron Adolphe de Rothschild, L'Insolite, Charlemagne, F. W. Moore, George Berger, Louis Van Houtte, ornatum, and B. S. Williams.

Forming a pleasant break between two gorgeously tinted masses of Caladiums is a diversified group from Messrs. Jas. Veitch & Sons, Chelsea. This is formed chiefly of trees and shrubs of a hardy character, and comprises the showy spikes of *Eremurus himalaicus*, masses of *Hydrangea paniculata grandiflora*, the contrasting tints of Azaleas in variety, Paeonies of many hues, with *Wistaria sinensis*, *Lilium longiflorum Harrisii*, Lily of the Valley, *Cytisus purpureus*, *Daphne cneorum majus*, *Spiraea astilboides floribunda*, and others. Acers in variety are dotted here and there, giving the whole a light and elegant appearance.

Then again Caladiums, this time from Messrs. J. Peed & Sons, Norwood, who have long since made themselves famous as growers of these elegant foliage plants. Quality and variety are unmistakable characteristics of the group, the plants being set up with taste. A groundwork of *Adiantums* shows off the richly coloured leaves to advantage, and among the numerous varieties are candidum, Prince of Wales, Le Nain Rouge, Michel Buchner, Baron Adolphe de Rothschild, Rose Laing, Gerard Dow, and Ibis Rouge. Among the Diamond Jubilee introductions are Mrs. John Peed, Duchess of Teck, Henry Dixon, Maria Dabil (very distinct), Thomas Peed, and Mr. W. H. Cumings, all of which are dwarf of habit with small rich leaves.

One corner of the tent is admirably filled by Messrs. W. Cutbush and Son, Highgate, and it would be difficult to speak too highly of the display of Carnations staged. The background is formed of Palms and other foliage plants, and in front of these is an undulating bank of the flowers named. Amongst the varieties are Germania, Lady Grimston, General Stewart, La Villette, Andrew Noble, Reginald Godfrey, and Cardinal Wolsey. Malmaisons form the majority of the display, and grouped *en masse* they make a fine effect, but had the show been a week later hundreds of the present buds would have been open flowers, by which the beauty of the exhibit would have been further enhanced.

There is a stamp of quality about the Caladiums staged by Messrs. Jas. Veitch & Sons, which is easily discerned, the plants being large, compact, and with leaves of a leathery character. Sloping gracefully in bank-like form, and interspersed with Maidenhair Ferns, the diversified tints are shown to advantage. Huge specimens of Madame John Box, Alice Van Geert, George Berger, Mrs. Harry Veitch, and Gaspard Crayer are very conspicuous; while of more diminutive habit are Silver Cloud, F. W. Moore, Princess Royal, Avillon, Lady Stafford Northcote, Baroness Schröder, Mrs. Bause, Exquisite, Prince Edward, Leonard Bause, Her Majesty, Duke of York, Chelsea Gem, Ladas, Lord Penryhn, and Martha Laforge, several of which are new.

Contrasting pleasingly with the gorgeous array of Orchids that graces the centre table of the large marquee is at one end a small but effective exhibit from the nurseries of Messrs. John Waterer & Son, Bagshot. This is formed of hardy Rhododendrons of various hues, comprised of Michael Waterer, J. H. Agnew, Mrs. Wm. Agnew, John Waterer, Charlie Waterer, Marchioness of Lansdowne, Duchess of Connaught, Duchess of Bedford, Star of Windsor, Kate Waterer, B. W. Currie, Mrs. Holford, and Chionoides. All the plants are covered with bloom, and many of the trusses are remarkable in size.

Mr. Thos. Whillans, gardener to His Grace the Duke of Marlborough, Blenheim Palace, Woodstock, shows his skill as a Carnation grower in his exhibit of these flowers, which are arranged at the other end of the long Orchid table. The blooms of *Souvenir de la Malmaison* Princess of Wales are of extraordinary size and stability, and high praise is accorded to the new yellow Carnation Duchess Consuelo, the plants of which are taller, crowned with flowers and foliage of that bright green hue which foretells good health.

Two hundred and fifty square feet of tabling are occupied by Mr. H. J. Jones' exhibit of Begonias. To say that these are the cream of the famous Lewisham collection gives a good idea of the excellence and diversity of the exhibit, the chief characteristics of which are variety and size of bloom, sturdiness of habit, and stability of foliage. The surface of the bank rises and falls, thus breaking the stiffness that might otherwise have been apparent, and Ferns are judiciously blended in the arrangement. Every colour known in Begonias is represented, both in double and single forms. Some are delicate in tint, others of a bold striking hue, while, to sum up briefly, all are of excellent quality, and equal if not superior to anything that Mr. Jones has shown before.

The next exhibitor's card bears the name of Messrs. John Laing and Sons, Forest Hill, whc, it is almost needless to add, show Begonias of the highest quality. Many of the varieties staged owe their origin to the firm, and amongst them one notices beautiful doubles of crimson and yellow shades, singles pure white, and of immense size, singles yellow, and singles scarlet. Amongst the named sorts are Duchess of Marlborough, an immense double of delicate flesh tint; Diamond Jubilee, a charming canary yellow; Clio, of similar colour, with edges of petals delicately fringed; and Dr. Jim, a striking light crimson. The arrangement is pleasing, and the plants throughout carry a stamp of exceedingly high quality.

Mr. G. Hunt, gardener to Pantia Ralli, Esq., Epsom, does himself credit in the exhibition of a good display of Caladiums. Amongst other varieties are Sir Julian Goldamid, Duchess of Fife, William Marshall, Madame John Box, Rose Laing, B. S. Williams, Reine de Denmark, Silver Cloud, Baron Adolphe de Rothschild, John Laing, Marquis of

Camden, Sir Henry Irving, and Mrs. Harry Veitch. Considering the display is from a private establishment it is a very meritorious one.

Clematis from Messrs. Geo. Jackman & Sons, Woking, make themselves seen by their healthy appearance and covering of varied floriference, and are comprised of Countess of Onslow, Duchess of Albany, and Duchess of York. The firm also has a fresh display of hardy flowers in variety. Conspicuous in the collection are *Primula luteola*, *Pæonies*, *Pyrethrum Hamlet*, *Papavers Blush Queen* and *orientalis bracteata*, *Phlox G. F. Wilson*, *Aster alpinus superbus*, double white Rockets, and other well known members of the hardy section.

A group of *Calceolarias*, bright and effective, hails from the nursery of Messrs. J. James & Sons, Slough. The plants bear traces of good culture in their dwarf sturdy habit, surmounted by masses of gaudily hued flowers. How to grow good *Calceolarias* of dwarf habit puzzles many admirers of these plants, but Messrs. James have apparently learned the secret, as in this respect the exhibit was exceptionally striking.

Messrs. Cannell & Sons, Swanley, have made a gallant display, which to see is to admire. What this well-known firm can do with *Cannas* needs no republishing; yet this section of the exhibit forms splendid evidence of their skill in the cultivation of these bright-hued flowers. Amongst the varieties are *Sunset*, *Queen Charlotte*, *Progression*, *Henry Irving*, *Paul Brnant*, and *Italia*. Next come *Gloxinias* in charming variety, the most conspicuous of which are *Prince of Wales*, *William Marshall*, and *Petunia*. Double *Begonias* claim a special word of praise, many of the varieties being exceptionally fine, though a little too close in arrangement. *Calceolarias* are extremely showy, and form a mass of varied blooms. Growth and habit are quite of the Swanley stamp, and the large exhibit throughout displays a striking diversity.

Japanese *Acers* of a varied character are staged by Messrs. Cripps and Sons, Tunbridge Wells, and show the elegance of these plants to great advantage. Bright green is the colour of *Acer japonicum aureum*, and as a contrast to this the copper-tinted hue of *A. palmatum atro-purpureum* is very pleasing. The foliage of *A. palmatum palmatifidum* is extremely graceful, and the same may be said of *A. palmatum dissectum*, and *A. palmatum linearilobum*. *A. palmatum florescens* is of light character in foliage, and of graceful habit, and other plants in the exhibit are equally striking.

Messrs. W. Fromow & Sons, Chiswick, are represented by Japanese Maples, amongst which are interspersed plants of *Lilium Harrisii*. Conspicuous in the group are *Acers palmatum tricolor*, *dissectum purpureum*, *palmatum roseum marginatum*, *japonicum laciniatum*, and *japonicum aureum*. *Aralia pentaphylla variegata* is included in the exhibit, which is diversified in character and arranged to good advantage. Many people are not aware of the beauty and usefulness of the hardy Japanese Maples which are so well shown by the Chiswick firm.

Extremely interesting is the exhibit of Messrs. W. Balchin & Sons, Brighton, which is comprised of hardwood plants. In the centre is a splendidly flowered plant of *Erica Spenceri*, and round it run the graceful forms of *Boronia serrulata*. *Boronia heterophylla* are arranged at the corners, and contrast pleasingly with the rich yellow of *Erica Cavendishi* and the unique blue tint of *Leschenaultia biloba major*. Well-flowered plants of *Genetyllis tnlipifera* and *Pimelea decussata* are conspicuous in an exhibit which is admirably arranged, and composed of plants of an interesting and beautiful character.

Messrs. R. & G. Cuthbert, Southgate, have a tasteful exhibit, comprised of Azaleas in great variety. Amongst others are *Pallas*, *Anthony Koster*, *Tasso*, *Prince Baudouin*, *Phidias*, *Mignon*, *Mons. Desbois*, *Aida*, and *Mr. E. Gumbleton*, the whole giving a good idea of the beauty of these flowers.

Ferns and foliage plants in variety comprise the exhibit from the nurseries of Mr. H. B. May, Edmonton, and are arranged with much taste. Noticeable among many others are *Platyterium æthiopicum*, *Polypodium glaucum*, *Gymnogramma chrysophylla grandiceps*, *Adiantopsis radiata*, *Davallia Mariesi maxima*, *Adiantums farleyense* and *fragrantissima*, *Polypodium aureolatum*, *Pterises longifolia Mariesi* and *tremula densa*. Other pleasing forms are noticeable, illustrating the extensiveness of Mr. May's collection.

New and rare plants of surpassing beauty come from Messrs. F. Sander & Co., St. Albans. These include specimens of a new double *Petunia*, *Mrs. Fred Sander*, and a fine plant of *Davallia hirta*. *Dracæna Sanderiana* figures conspicuously in the exhibit, which also contains *Streptocarpus Sander's White*. *Dracæna Godseffiana* is remarkably well shown, as also are *Anthuriums* in variety, *Begonias* of velvety foliage, and *Caladium speciosum*. Standing at one end of the group the visitor sees *Pitcher Plants* and *Flame Flowers*, *Begonias* and *Orchids*, *Petunias* and tiny cluster *Roses*, with foliage plants and Ferns of diversified character all blended together, and forming contrasts that are, in short, both elegant and graceful.

Dotted in between two masses of showy *Orchids* is a group of well grown *Gloxinias* from the nurseries of Messrs. J. Peed & Sons, Norwood. In the centre is a mass of *Beacon*, a showy crimson variety, and striking also are the flowers of *Jumbo*, *Mrs. Burrell*, *Duke of York*, *John Peed*, and *Aigburth Crimson*. The plants, though not large, are of compact habit, with abundance of flowers surmounted on sturdy footstalks.

Messrs. W. & J. Brown, Grantham, occupied a small square of space with a varied collection of plants, comprising *Crimson Rambler Roses*, *Kalosantes*, *Mrs. Wynne*, *Zonal Pelargoniums* in variety, with *Begonias* and *Mignonette*, interspersed with Ferns and foliage plants.

Outside one of the tents is an interesting group of plants from *Leopold de Rothschild, Esq., Gunnersbury House*. Included in it are immense specimens of white *Marguerites*, the equal of which are rarely seen, scented *Geraniums* several feet through, pyramids of equal merit,

and *Myrtles* that give evidence of superior culture. Mr. Hudson's exhibit is worthy of his skill as a gardener, and is particularly interesting, inasmuch as it is an entirely new feature. Perhaps few people are aware of the splendid specimens that may be formed of a common *Marguerite*, and in this respect the exhibit is a means of education.

Messrs. J. Backhouse & Sons, York, again have their miniature rockery, on which are shown Alpines in a growing state. To bring a rock garden under canvas is something out of the ordinary, but so well is it done that there is little about it that looks artificial, and it is an admirable way of showing the beauty of many of the tiny gems. Among other charming rock plants are *Myosotis Rhosteineri*, *Viola lutea Gem*, *Gentiana verna*, *Armeria Lauchiana*, *Antbyllis montana rubra*, *Linum alpinum*, *Phlox subuluta compacta*, *Saxifragas cochlearis* and *atro-purpurea*. The firm also shows *Carnation Marjorie Pierce*, a pleasing tint of yellow, and other flower and foliage plants.

Messrs. Barr & Sons, Covent Garden, have their usual large exhibit of hardy flowers quite up to the reputation of the firm. Irises are the first to claim attention, and amongst these *I. pallida Albert Victor*, *I. albicans Princess of Wales*, *I. germanica Kharput*, and *I. variegata Abou Hassan*, are very striking. Then comes a small space formed as a rock garden, containing the charming flowers of *Saxifraga Macnabiana*, *Phlox Nelsoni*, *Viola pedata*, *Myosotis rupicola*, *Lychnis alpina*, *Trollius Orange Globe*, *Dodecatheon splendens*, *Aubrietia Leitchlini*, and many others. The mass of hardy flowers is confusing in variety. There are *Papavers* and *Pæonies* of many tints, *Pyrethrum* of bright colour and numerous varieties, florists' *Talips*, *Centaureas*, *Thalictrums*, *Ixias* of divers hues, beautiful *Carnations*, *Anemones*, *Gypsophila elegans*, *Lupins*, and *Narcissi*, with many others, which make up a unique display.

A pleasant break in the masses of floral beauty all round is the miniature rockery set up by the Guildford Hardy Plant Company. It is admirably furnished by members of the Alpine family, and from crevices in the stones peep out such gems as *Saxifraga Wallacei*, *Phlox Vivid*, *Cypripediums calceolus*, *montana*, and *pubescens*, and many others. For the benefit of visitors it would be well if the flowers were labelled, as this would add to the interest of the exhibit. Coniferous plants form a good background, and the display on the whole is extremely interesting.

Messrs. W. Paul & Son, Waltham Cross, are responsible for a varied exhibit, comprising a new single *Thorn Crimson Queen*, specimens of foliage plants, and a collection of *Rhododendron* flowers, among which may be seen *The Gem*, *Nero*, *John Waterer*, *Lady Dorothy Neville*, *Lord Palmerston*, *Frederick Waterer*, *Mrs. Standish*, *Portia*, *Mrs. Milner*, *Countess of Wilton*, *Charles Dickens*, *erectum*, *The Queen*, and *Nobleanum bicolor*.

Carnations in pots are staged by Mr. John Forbes, Hawick. These are composed entirely of the scarlet variety *Yuletide*, the blooms of which are large and well formed, while the plants illustrate the habit and usefulness of the variety. The firm is also showing a collection of seedling *Polyanthus*, illustrating its strain of these favourite spring flowers.

Herbaceous and other flowers are shown by Messrs. Paul & Son, Chess-hunt, comprising *Lilacs* and *Rhododendrons*, *Irises* in variety, *Papavers orientale coccineum* and *orientale*, *Geum miniatum*, *Centaureas montana* and *montana album*, *Lupinus polyphyllus albus*, *Pyrethrum Hamlet*, and others, the whole forming a diversified exhibit. Edwardian decorations come from Messrs. W. Edwards & Sons, Sherwood, Nottingham, who have a table stocked with elegant arrangements of Ferns and flowers.

The delicate green of Ferns contrasts pleasingly with the wealth of flowers, and for this Messrs. W. & J. Birkenhead, Sale, are chiefly responsible. Their exhibit is a large and varied one, comprising stove, greenhouse, and hardy Ferns. There are *Adiantums coccineum*, *speciosum*, *grandiceps*, *farleyense*, *tenerum*, *roseum*, *intermedium*, and others; *Polystichums cristatum*, *aculeatum*, *venustum*, *congestum*, and *divisilobum densum*, *Athyriums* in great variety, and *Pterises tremula*, *Smithiana*, *Wimsetti*, and others. Under the cover of a glass case is a pleasing variety of "Filmies," including *Todea superba* and *Trichomanes radicans*. Giant Elk's-horns contrast strikingly with the diminutive and graceful growths of many of the more tender forms, and the exhibit is of interest to all visitors.

A long extent of tabling is occupied by Messrs. Kelway, Langport, who show *Pyrethrus* in charming variety, numerous flowers of *Amaryllis*, including *Ziska*, *Mrs. Langtry*, *Alfred Henderson*, and *Wilkie Collins*, and *Cannas* of varied hues. In addition to these the firm has large stands of *Aquilegias*, *Lupins*, *Pæonies*, and *Irises*. Double *Pyrethrus* are in themselves a feature, and illustrate the usefulness of these charming flowers. Among the latter *Wilson Barrett*, *Melton*, *Evelyn*, *Nancy*, *Ne Plus Ultra*, *Leonard Kelway*, and *Queen Sophia* are well worthy of special mention, though the exhibit altogether is quite equal to former attempts of the firm.

Messrs. A. W. Young & Co., Stevenage, have an exhibit comprised of a variety of plants and flowers. *Coleus* are side by side with *Pansies*, and near at hand are *Wallflowers* and *Rhododendrons*. Further on are hardy flowers and rock plants in variety, and further still a collection of semi-double salmon-tinted *Zonal Pelargonium King of Denmark*. Attempts have evidently been made to get a large number and variety of plants into a limited space, and in this respect Messrs. Young have succeeded thoroughly.

Alpine and hardy herbaceous flowers occupy the space allotted to Mr. M. Pritchard, Christchurch, Hants. One notices the blooms of *Hemerocallis flava*, *Trollius japonicus*, *Pæonias* in variety, *Thalictrum*

aquilegifolium roseum, *Pyrethrum Florentina* and *Niveum plenum*. *Aquilegias* of mixed strains, *Phloxes divaricata* and *The Bride*, *Delphinium Belladonna*, *Lupinus arboreus*, *Eurybia Ganniana*, *Anthericum liliastrium*, *Geum miniatum*, and others. The flowers are arranged with taste, and not unduly crowded.

Messrs. J. Chcal & Sons, Crawley, are responsible for a diversified exhibit of rock plants, flowering shrubs, and *Violas*. Amongst the latter are *Archie Grant*, *Bridesmaid*, *Crimson King*, *Trentham Purple*, *Ardwell Gem*, *Blush Queen*, *Bullion*, and *Colleen Bawn*. Following these is an artistic rockery* furnished with *Phloxes* of many varieties, *Cheiranthus alpinus*, *Aubrietia Leitchlini*, *Veronica rupestris*, *Lithospermums prostratum* and others, this part of the exhibit being followed by hardy foliage and flowering shrubs, including *Acers*, *Genistas*, *Lilacs*, *Rhododendrons*, perhaps a little too crowded in arrangement.

Those whose taste leads them in the direction of the ever-popular *Sweet Pea* may find them in the exhibit of Messrs. Dobbie & Co., *Rothsay*. *Dahlias* in May are quite extraordinary, yet this enterprising firm has them in such varieties as *Miss Webster*, *Earl of Pembroke*, *Cannell's Gem*, *Matchless*, *Countess of Pembroke* of the *Cactus* types, and singles *Kenilworth*, *Lady Rowena*, *Alice Lee*, and *Anne of Geirstein*. Turning to the *Violas* the visitor's interest is centred on such charming varieties as *Blue Cloud*, *Rob Roy*, *White Bedder*, *Iona*, *Wonder*, *Lavender King*, *Dandie Dinmont*, *White Flag*, *George Lord*, *Peter Barr*, *Ardwell Gem*, *George Abbey*, *Prince of Orange*, *Lemon Queen*, *True Blue*, and others, all in the pink of perfection.

Mr. J. R. Box, Croydon, has a group of *Begonias* quite up to his usual standard. Both double and single forms are well represented, the flowers in all cases being large, and plants of healthy sturdy character. Amongst the former the blooms of *Diamond Jubilee*, *Princess of York*, and *Queen of Queens* are exceptionally fine, the latter being of a most effective colour. The single forms extend over a wide field of colour, and the exhibit is one of the best of its kind in the show.

Carnations also come from Mr. Geo. Stevens, Putney, who shows a diverse collection, which includes Mrs. Geo. Stevens, Mrs. Whittle, Miss L. Stevens, Ruby Primrose, and G. Pike. Mr. C. Blick, gardener to Martin R. Smith, Esq., The Warren, Hayes, has plants of a fine white *Carnation* called *Bondsman*, another one of the same colour, *Elfin*, and a border variety, *Artemus*. Mr. W. Bull, Chelsea, sends plants of *Ficus radicans variegata*, *Davallia epiphylla*, *Anemia rotundifolia*, and *Crinum Moorei variegatum*; and from Mr. Moser, Versailles, are plants of a pretty striped *Clematis Nelly Moser*. From Mr. H. Howell, Hammer-smith, there is a small but effective exhibit of *Ferns*, including *Pteris Howelli* and *Caladiums*. Mr. R. Dean Ealing, sends plants of new dwarf bedding *Violas* growing in pots, among which are included *Fascination*, *Hetty*, *Tiny*, *Dorothy*, *Regalia*, *Lavender*, *Ladas*, and *Little Tich*.

A pleasing collection of hardy flowers hails from Mr. B. Ladhams, the Shirley Nurseries, Southampton. Their appearance is fresh, and not overcrowded. Amongst many others *Heuchera sanguinea*, *Lupinus arboreus* and *arboreus albus*, *Centaurea montana rosea*, *Papaver orientale*, *Aster alpinus superbus*, *Senecio Doronicum*, with single and double *Pyrethrums* and *Irises* in variety, are very effective. From the Ichthemio Guano Company, Ipswich, is a collection of *Azaleas* and *Pelargoniums*. From Messrs. Gregory & Evans, Sidcup, are specimens of yellow *Calceolaria Victoria*.

Messrs. R. Wallace & Co., Colchester, are represented by a unique exhibit, which includes miniature hardy *Cypripediums*, snow white single *Pæony* Mrs. Robert Wallace, *Brodiaea capitata*, diminutive *Calochorti* in variety, and an elegant group of *Spanish Iris*. In addition to the above are *Liliums* of many kinds, including *umbellatum*, *Sappho*, *longiflorum giganteum*, *Dalhouseianum*, *tenuifolium*, and others. Graceful *Ixias* claim the attention of visitors, and another pretty flower is *Ixiolirion Pallasii*. *Camassia esculenta* is included in the group, and among the array of *Irises* are *lupina variabilis* *Raphael*, *Queen of May*, *florentina*, and *flavescens*.

Strikingly beautiful is the display made by Messrs. Jas. Veitch and Sons, Chelsea. *Phyllocactus* are in themselves a feature, but their beauty seems dimmed by the glorious array of *Gloxinias* and *Streptocarpus*. Among the former are to be seen fine plants of *Gomez*, *Eclatant*, *Adela*, and *Virginalis*, and others, and in the collection of the latter Mr. Heal, Messrs. Veitch's well known grower and hybridiser, does himself great credit. Amongst the hybrids shown are numerous shades of purple, violet, pink, and rose. Others are pure white, and in the exhibit one sees a perfection in *Cape Primroses* that were little thought of a few years ago, and the healthy appearance of the plants denotes high cultivation.

Messrs. Sutton & Sons, Reading, made a splendid feature with their large exhibit of *Gloxinias*. There are over 400 plants, remarkable for their floriferousness, colour, and erect habit. Among the diversity of forms are *Her Majesty*, a fine white variety; *Empress of India*, an imposing flower of rich purple; *Reading Scarlet*, which in colour is true to its name, and spotted hybrids, the delicate markings of which are worthy of close attention. The famous Reading firm occupies the greater portion of one of the middle tables with *Gloxinias*, following which a fine group of Sutton's Giant *Mignonette* tells its presence by the huge flowers and delicious odour. The plants are fine examples of good culture, being of compact and sturdy habit. On beds in the gardens are groups of Sutton's bedding *Begonias*, which well illustrate the usefulness of the strain for the adornment of flower gardens.

Messrs. Fisher, Son & Sibray, Sheffield, have a small exhibit of *Oroton* "*Her Majesty*," a graceful variety, with green and yellow foliage. Outside the tents the firm has a large group of plants, com-

prised chiefly of *Acers*, *Elders*, *Cornuses*, and *Euonymuses*. The plants are tastefully arranged, and though outside they are no less a feature.

Messrs. Jas. Veitch & Sons had a group of hardy flowering shrubs outside the tents, and Messrs. John Waterer & Sons, Bagshot, had an interesting group of Japanese *Maples*—dwarf plants of all the best varieties.

FLORAL DESIGNS.

In this section the palm is unreservedly given to Messrs. Jas. Carter and Co., High Holborn, who are to be commended for leaving the trodden path and introducing a new feature. The exhibit occupies the whole of the centre table in tent No. 1, and is remarkably fine. In the centre is a floral design, surmounted by a crown, and below this hangs a floral V.R., this being in close affinity to the *Diamond Jubilee*. *Asparagus plumosus* and flowers are judiciously employed, the result being a most effective arrangement. Underneath are magnificent *Calceolarias* of a superb strain, and following these one sees *Gloxinias*, *Petunias*, and *Mimuluses* of immense size of flower. *Lilium Harrisii* and *Shirley Poppies* stand at one end of the table, and further on are masses of the dwarf *Sweet Pea* *Cupid*, *Pyrethrums*, *Nasturtium Empress of India*, *Narcissi*, *Tulips*, *Lupines*, *Irises*, *Pansies*, and *Sweet Peas* in pots dotted about amongst vegetables of superb quality. In the exhibit the Holborn firm has surpassed any of its former efforts.

Mr. L. H. Calcutt, Stoke Newington, has floral designs in the form of wreaths, crosses, harps, arches, bouquets, and so forth. Choice flowers are displayed with taste, and elegant arrangements are the result. *Orchids* are used in conjunction with *Irises*, and white *Pancreatums* and scarlet *Carnations* also go together. Blue *Cornflowers* and scarlet *Geraniums* are largely used in the varied designs. Baskets of choice *Orchids*, bouquets of *Carnations*, harps of stove flowers, and designs of *Roses*, *Carnations*, and other flowers are admirably shown by Messrs. Jones & Sons, Shrewsbury. *Asparagus plumosus* is largely used, its feathery lightness blending pleasingly with the flowers. The whole is a splendid display of the florists' art, and is much admired. Miss May Foden, Hemel Hempstead, has a pleasing decoration for dinner table, formed of *Spanish Irises*, with *Grasses* and *Ferns*; and near at hand Mrs. W. Green, Romford, has made a pleasing arrangement with *Aquilegias*, *Smilax*, and *Marguerites* shown in elegant glass stands.

The exhibit of Mrs. Phippen, Reading, is extremely effective, though a little too crowded. In the centre is a huge cross of scarlet *Pelargoniums* and *Anthuriums*, and on either side are designs of *Roses* and other flowers, stars of *Lily of the Valley*, bouquets of *Orchids* and *Roses*, with lyres and harps of extreme beauty, and displaying much taste. Mr. H. C. Garford, Stoke Newington, has a large decoration of choice flowers and elegant foliage.

Mr. J. Prewett, Bayswater, W., shows floral designs, which illustrate ways of decorating a dinner table in an easy and effective manner. *Roses* and *Orchids* are principally used, with *Fern* and other light foliage. Moyses Stevens, Belgravia, has beautiful display of wreaths, crosses, and bouquets. Conspicuous in the exhibit of Messrs. Perkins and Sons, Coventry, is an immense crown, formed of yellow *Roses*, crimson *Carnations*, and *Ericas*, which is very effective. Baskets of *Roses* and *Orchids*, with bouquets and other designs of surpassing elegance on either side, are quite worthy of the high reputation of this firm.

CERTIFICATES AND AWARDS OF MERIT.

Anæctochilus Sanderianus (F. Sander & Co.).—A peculiarly pleasing colour is the leaf of this plant. The green is wonderfully bright, while the brown and rose venations are very conspicuous (award of merit).

Azalea rustica fl.-pl. Freya (J. Veitch & Sons).—A surprisingly floriferous variety of the best habit. The colour is rose, with a very slight suspicion of orange (award of merit).

Azalea rustica fl.-pl. Ribera (J. Veitch & Sons).—This is so free flowering that it is almost impossible to see the leaves. The colour is white suffused with rose (award of merit).

Begonia Diamond Jubilee (J. R. Box).—A pure yellow double variety of the best quality (award of merit).

Begonia Queen of Queens (J. R. Box).—A beautiful flower of a soft apricot colour (award of merit).

Caladium Lady Stafford Northcote (J. Veitch & Sons).—This is probably one of the best varieties in cultivation. The leaves are true crimson, and the habit of the plant is very good (award of merit).

Caladium Mrs. McLeod (J. Veitch & Sons).—Belonging to the dwarf section, this is one of the most charming in the show. The colour is crimson (award of merit).

Canna Comte de Bouchard (H. Cannell & Sons and Paul & Son).—The scarlet spots on the yellow ground of this variety are very fine. The flowers are large (award of merit).

Carnation Artemus (C. Blick).—A crimson flake fancy of splendid substance (award of merit).

Cattleya Mossie Empress Queen (L. Linden).—A massive flower in all respects of the most pleasing type. The sepals and petals are clear rose, while the broad fimbriated lip is white at the outside with a crimson centre. The side lobes are yellow, as is the front portion of the throat (award of merit).

Cattleya Schilleriana Hardy's variety (T. Stafford).—This may be most comprehensively described as a very much improved form of the type (first-class certificate).

Cattleya Mendeli Madonna (W. L. Lewis & Co.).—The broad sepals and petals of this beautiful form of *Mendeli* are pure white, save

for the most delicate blush suffusion. The fimbriated lip is white at the outer margins with a patch of crimson red. The throat is golden yellow (award of merit).

Cœlogyne Dayana The Dell variety (H. Ballantine).—The variety here recognised is one of decided merit. Besides the flowers being thicker set on the spike, the lip is very much finer in all respects (award of merit).

Clematis Marcel Moser (Jean Moser).—A most striking Clematis. The centre of each petal is rose, and the outer portions silvery white (award of merit).

Clematis Duchess of Albany (G. Jackman & Son).—Soft rose is the colour of this beautiful Clematis, which belongs to the hybrid coccinea section (award of merit).

Croton Her Majesty (Fisher, Son & Sibray).—A narrow straight-leaved variety, of a clear yellow colour with a green tip (award of merit).

Cypripedium Chapmani magnificum (H. J. Chapman).—This is a very handsome Cypripedium, from a cross between bellatulum and Curtisi. The round dorsal sepal is white veined and spotted with dull crimson, this also being the colour of the petals. The lip is of good shape, and deep claret in colour (first-class certificate).

Cypripedium cono-bellatulum (R. Johnson).—With a name such as this hybrid has been given there is no necessity to give the parentage, of which the evidences of both are perceptible. The ground colour of the whole flower is cream, profusely spotted with dull crimson (award of merit).

Davallia hirta (F. Sander & Co.).—This is a handsome Fern that will be accorded a high position in public favour when it becomes known. The frond is about 3 feet in length, and almost 15 inches across at the broadest part. The habit is very graceful (first-class certificate).

Ficus radicans variegata (W. Bull).—A charming plant, with well pronounced silvery variegations (award of merit).

Iris Lupina (R. Wallace & Co.).—A species growing to a height of about 10 inches. The standards are brown with silvery streaks, the falls being rather lighter in colour save for a deep velvety patch (award of merit).

Lælio-Cattleya Lady Wigan (Charlesworth & Co.).—The parents of this bigeneric hybrid are *Lælia purpurata* Russelliana and *Cattleya Mossiae aurea*. The flower is large, the lip being superb. The outer portion is white, flushed rose, the veins towards the throat being bright maroon. The throat is yellow, faintly mottled with crimson. The sepals delicate blush in colour are narrow, and the petals, which are broad, are of a slightly darker hue (first-class certificate).

Lælia purpurata fastuosa (A. Warburton).—A very fine purpurata. The sepals and petals are very rich rose in colour. The lip is of good shape, and the colour is rich crimson (award of merit).

Lælio-Cattleya tyntesfieldiense (G. W. Law-Schofield).—A very beautiful bigeneric hybrid. The sepals and petals are rose, with an indistinct buff suffusion. The superb lip is rich velvety crimson, becoming slightly paler towards the outer portion (first-class certificate).

Odontoglossum Pescatorei Imperiale (L. Linden).—A variety of striking beauty. The three sepals are white, flushed rose, and with a large central blotch of crimson brown. The ground colour of the petals is pure white, as also is the lip, the smaller spots being the same colour as the blotches on the sepals (award of merit).

Odontoglossum excellens var. (R. Ashworth).—This is a charming form of the well-known excellens that is said to be a natural hybrid (award of merit).

Odontoglossum crispum Queen Victoria (H. Low & Co.).—One of the best crispums in the exhibition. The shape is almost perfect. The rose-suffused sepals each carry a large light chocolate blotch, as do the whiter petals. The lip is white and a little fringed with yellow and brown markings (first-class certificate).

Odontoglossum sceptrum aureum (W. Stevens).—Very charming is this variety. The spike is good and well formed. The colour of the sepals is buff lightly barred with yellow. The petals are yellow with buff mottlings, while the lip is yellow with a buff central blotch (first-class certificate).

Odontoglossum excellens Thompsoni (W. Stevens).—A variety of the greatest beauty. The chocolate brown blotches on the various organs, of which the ground colour is yellow, are singularly handsome. The form of the flower leaves nothing to be desired (award of merit).

Odontoglossum crispum Annis (W. Stevens).—So far as shape is concerned this variety is very fine. The colour of the sepals and petals is white with maroon flushings, blotches, and spots. The lip is white with brown spots and a yellow crimson veined throat (award of merit).

Odontoglossum crispum Petersi (Peeters).—The flowers of this variety are rather small, but of good form. The spots and blotches are a rich chocolate brown (award of merit).

Odontoglossum crispum Starlight (King).—Perhaps the most distinct crispum in the show. The sepals are deep rose profusely spotted with brown. The shapely petals are of white, with a rose suffusion chastely spotted. The lip is white, with yellow in the throat, and sparse chocolate spots (first-class certificate).

Petunia Mrs. Fred Sander (F. Sander & Co.).—Of the richest rose colour, and with perfectly double flowers of considerable size; this is a superb acquisition. The edges of the flowers are chastely fimbriated, and greatly increase the beauty of the plant (award of merit).

Pyrethrum Wilson Barrett (Kelway & Son).—A perfectly double variety of the best shape. The colour is very bright deep rose (award of merit).

Phyllocactus Adonis (J. Veitch & Sons).—The delicacy of the rose colour of this variety is most pleasing. The flower is of good form (award of merit).

Phyllocactus Syrens (J. Veitch & Sons).—Of beautiful form; the petals in this variety are very fine. The colour is pale rose (award of merit).

Rhododendron fl.-pl. Madame Moser (J. Moser).—A semi-double form of a deep crimson colour (award of merit).

FRUIT AND VEGETABLES.

Although the show is, in the main, one of plants and flowers, yet variety is afforded by the best displays of fruit and vegetables that have yet been seen in the Temple Gardens. These, what may be termed utilitarian sections, are that and something more, for they have a beauty all their own, and prove a great source of attraction. Though in some instances fruits and vegetables were more or less mixed, in our snatch note references they will be kept together as much as possible, and briefly described in the order in which they were seen before the Judges' awards were made, a record of which will follow in due course.

FRUIT.

First to receive attention must be the striking collections of trees in pots as arranged by Messrs. T. Rivers & Son, Sawbridgeworth, and Mr. Jas. Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton; and though these groups are in the chief marquee, flanked with magnificent Roses and faced by rich banks of Orchids, they maintain their power in arresting attention and inciting expressions of admiration, as well they might. In their fine exhibit it may be said that Messrs. Rivers achieve another triumph in growing Peaches and Nectarines in pots, of which they exhibit some fifty or sixty trees of various ages and shapes, but all in rude health, and cropped with handsome fruits. The Nectarines consist of the unrivalled earlies, Cardinal the first of all, and the later and larger Early Rivers, brightly coloured, and set the trees aglow. Cardinal when first shown was small, but the fruits seem to get larger yearly, the result of more experienced cultivation. It has to be remembered they have only been seen on trees in pots, or gathered from them, and it is practically certain that this precocious Nectarine from well managed planted out trees will be larger than most of the old and much later varieties usually grown in gardens. As to Early Rivers, the fruits are as large, bright, and rich as the most exacting could desire. The Peaches shown are mostly Early York and Early Rivers. A tree of Guine de Annonay Cherry, twenty years old, in a 15-inch pot, attracted much attention, as it was laden with clusters of dark red fruits. Altogether the group is a splendid one.

One of the most remarkable exhibits of its kind from a private garden—that of Leopold de Rothschild, Esq.—consists of some fifty trees in pots ranging from bearing Fig trees a foot high to Peaches, Nectarines, Plums, and Cherries seven or eight times the height, all in the best possible health, and bearing the best of crops of excellent fruit. Boxes of gathered fruit are also shown, these including Frogmore Bigarreau, Empress Eugénie, Bigarreau de Schrecken, and Frogmore Bigarreau Cherries, also ripe fruits of Cardinal and Early Rivers Nectarines, six of the last named weighing 31 ozs. A note attached states that trees started December 1st, 1896, grown in the same house, gave ripe fruits on the following dates:—Cardinal Nectarine, May 12th; Early Rivers, May 24th. Mr. James Hudson, the grower of this collection of fruit, deserves unstinted congratulations.

Passing through other marquees between long and brilliant avenues of flowers, we find repose in the last tent reached, for here are arranged most of the fruit next to be noticed. Messrs. George Bunyard & Co., Maidstone, have a splendid collection of Apples and Pears, about seventy dishes altogether, remarkably alike for size, colour, and quality at this period of the year. The fruits are backed by healthy fruitful pyramids of Peaches and Nectarines, and dwarf highly productive Figs. It is evident that this firm knows how to grow fruit, how to preserve it, and how to display it to advantage. The group contained the only Apples in the show, and these fresh and firm—a credit even to Maidstone.

Mr. J. McIndoe, gardener to Sir Joseph Pease, Bart., exhibits a truly admirable collection, including a good Pine, fine Grapes, Melons, Oranges, Peaches, Nectarines, Citrons, Figs, Cherries, Strawberries, Pears, and Tomatoes—something to be proud of, and would have won a high position at any show in the kingdom.

Mr. W. J. Empson, gardener to Mrs. Wingfield, Amptill, has arranged a highly attractive and meritorious collection of Strawberries—several plants heavily fruited in pots, while gathered fruits are arranged in association with black and white Grapes and Myrsiphyllum in the form of a large crown. A sturdy plant of Musa Cavendishi, with a heavy cluster of fruits, attracts much attention.

Messrs. Laxton Brothers have a massive bank of Strawberries in pots, including Royal Sovereign heavily fruited, also Leader, Monarch, and some unnamed seedlings. The fruits, especially of Leader, are very fine indeed.

Mr. G. Wythes, gardener to Earl Percy, Syon House, has a large and diversified assortment of excellent fruit, including large specimens of *Monstera deliciosa*, a well-ripened and fine cluster of Bananas, capital Grapes, Peaches, Nectarines, Figs, and Strawberries, also about a bushel of Melons and large Tomatoes.

Mr. C. Beckett, gardener to Sir W. G. Pearce, Bart., Chilton Lodge, Hungerford, stages a large and meritorious collection, including very good black and white Grapes, Peaches, Nectarines, Figs, Melons,

Strawberries, and Tomatoes, altogether over thirty dishes, and entirely creditable to the cultivator.

Mr. G. Featherby, Gillingham, Kent, exhibits splendid market baskets of Black Hamburg and Muscat Grapes, also very good Peaches and Nectarines, and large baskets of Strawberries came from the Swanley College.

Melon Diamond Jubilee.—A good sized, round, well netted scarlet-fleshed Melon, raised and grown by Mr. C. Herrin, Dropmore, was found to be remarkably sugary, and adjudged an award of merit—the first honoured Melon of the year.

VEGETABLES.

Certainly a great advance is to be noted here, not in the form of unwieldy specimens so much as for diversity, high quality, and effective arrangement. An enormous collection of splendid produce is displayed by Messrs. Jas. Veitch & Sons, Ltd. Peas, Beans, and Tomatoes in pots along the back, with bold groups in front of Mushrooms, Cauliflowers, Cabbages, Lettuces, Model Broccoli, Asparagus, Cucumbers, Leeks, Radishes, and Turnips, not a weak specimen to be found in the whole extensive group.

From the gardens of Mrs. Wingfield comes a remarkable display, extending over some 20 yards in length of table. At the back are Potatoes growing in boxes, with the front side glazed to show the tubers. Broad Beans in 6-inch pots, growing as healthfully and bearing as freely as the plants do in gardens in June and July. Peas, Carter's Dwarf and Daisy, bearing bountifully in 7-inch pots. In the front, arranged in bays or panels, divided by raised blocks of Cucumbers and Leeks, are practically all kinds of vegetables that could be had in use at the present time; and with the fruit (previously described) at the end of it forms a contribution such as perhaps has never been staged by a private gardener.

Messrs. Jas. Carter & Co. have arranged at the end of their great floral exhibit plants in pots of their Model Cucumber, bearing wonderful crops; Peas, tall and dwarf, in pots, margined with Green Fringed Lettuce, which makes an appropriate and attractive edging.

A creditable assortment of vegetables is displayed from the Horticultural College, Swanley, including most kinds in season, and Sutton's Al Cucumbers of quite unusual length. Mr. Frank Chapman, market gardener, Colchester, sends magnificent Asparagus, and Mr. G. Featherby, Gillingham, fine Cucumbers and French Beans. Mr. de V. F. Lebeuf, 22, Route de Sannois, Argenteuil, has broodingnagian Asparagus, but most visitors seem to prefer that near it from Castle Ashby.

Mr. J. T. Wray, gardener to the Marquis of Northampton, Castle Ashby, has a highly creditable collection of vegetables, including Celery almost ready for eating, gigantic Leeks and Broccoli, excellent Asparagus and French Beans, Turnips, Carrots, Potatoes, and various saladings, the whole displaying evidence of good cultivation.

Tomato Golden Jubilee.—Heavy clusters and fine gathered fruits of this beautiful variety, sent by Mr. Owen Thomas from the Royal Gardens, won a first-class certificate. In quality for eating raw this is excellent, the flavour being delicate and refreshing. It is also attractive in appearance by the cleanness in colour and transparency.

LIST OF AWARDS.

Gold Medals.—Messrs. James Veitch & Sons, Chelsea, for Hardy Flowers, Scrubs, Cactus, Caladiums, Streptocarpus, Vegetables, &c.; Messrs. de Rothschilds, Gunnersbury, for Fruit Trees in Pots, Myrtles, &c.; Messrs. Rivers, Sawbridgeworth, for Fruit Trees in Pots; Messrs. Fisher, Son & Sibray, Sheffield, for Hardy Plants; Mr. Geo. Mount, Canterbury, for Roses; Baron Schröder, The Dell, Staines, for Orchids. Note.—Sir Trevor Lawrence, Bart., President of the Society, would have received a gold medal had his plants been for competition.

Silver Cups.—Messrs. Wm. Paul, Waltham Cross, for Roses, Rhododendrons, &c.; Messrs. Paul & Son, for Roses, Cannas, and Alpine Plants; Messrs. Charlesworth & Co., Bradford, for Orchids; Messrs. Barr & Son, Covent Garden, for Herbaceous Plants; Messrs. Backhouse, York, for Alpine and Hardy Plants; Messrs. Wallace & Co., Colchester, for Lilies, Irises, &c.; L'Horticole Internationale, Brussels, for Orchids; Messrs. Dobbie & Co., Rothesay, for Violas, Pansies, &c.; Sir J. W. Pease, Bart., Hutton, for Fruit; Mrs. Wingfield, Amptill, Beds, for Fruit and Vegetables.

Silver-gilt Flora Medals.—Messrs. May, Edmonton, for Ferns, &c.; Messrs. Fromow, Chiswick, for Maples; Messrs. Cripps & Son, Tunbridge Wells, for Maples, &c.; Messrs. Wills & Segar, Onslow Crescent, South Kensington, for Palms, &c.; Messrs. Rumsey, Waltham Cross, for Roses; Messrs. Kelway, Langport, for Pæonies, &c.; Mrs. Phippen, Reading, for Decorations; Mr. Moyses Stevens, 146, Victoria Street, S.W., for Decorations; Mrs. W. Green, Romford, for Table Decorations; Messrs. Perkins, Coventry, for Decorations; Miss M. Foden, for Table Decorations; Sir F. Wigan, Bart., East Sheen, for Orchids; Messrs. Lewis, Southgate, for Orchids; Mr. J. Cypher, Cheltenham, for Orchids; Messrs. H. J. Jones, Lewisham, for Begonias, &c.; Mr. J. R. Box, Croydon, for Begonia; Messrs. James, Farnham Royal, for Calceolarias; Messrs. Cutbush, Highgate, Carnations; His Grace the Duke of Marlborough, Blenheim, for Carnations; Guildford Hardy Plant Nursery, for Hardy Plants; Messrs. J. Waterer, Bagshot, for Rhododendron and Maples; Messrs. Peed, Norwood, for Gloxinias and Caladiums; Earl Percy, Brentford, for Orchids and Fruit.

Silver Flora Medals.—Messrs. Jackman, Woking, Clematis, Herbaceous Flowers; Mr. B. Ladhams, Shirley, Southampton, for Hardy Flowers; F. Hardy, Esq., Tyntesfield, for Orchids; Messrs. W. Brown, Stamford, for Cut Flowers; Mr. H. O. Garford, Stoke Newington, for

Decorations; Messrs. Edwards, Sherwood, for Decorations; L. Mond, Esq., Regents Park, for Orchids; Mons. E. Pirat, Argenteuil, for Orchids; Mr. John Forbes, Hawick, N.B., for Carnations; Mr. G. Stevens, Putney, for Carnations; Mr. A. W. Young, Stevenage, for Gloxinias, &c.

Silver-gilt Banksian Medals.—Pantia Ralli, Esq., Ashted, for Caladiums; Messrs. Birkenhead, Manchester, for Ferns; Mr. W. Iceton, Putney, for Foliage Plants; Mr. G. Featherby, Gillingham, for Grapes, &c.; Marquis of Normanby, Castle Ashby, for Vegetables; Mr. J. Prewett, Hammersmith, for Table Decorations; Mr. L. H. Calcutt, for Floral Decorations; W. A. Gillett, Esq., Bishopstoke, for Orchids; Welbore Ellis, Esq., Dorking, for Orchids; W. Thompson, Esq., Stone, for Orchids; Messrs. R. Smith & Co., Worcester, for Clematis; Mr. M. Pritchard, Christchurch, for Herbaceous Plants; Messrs. Balchin & Son, Hassocks Nurseries, for New Holland Plants; Messrs. Cheal & Sons, Crawley, for Herbaceous Plants.

Silver Knightian Medals.—Mons. A. Belin, Argenteuil, for Asparagus; Mr. F. Chapman, Colchester, for Asparagus; Messrs. Laxton, Bedford, for Strawberries; the Horticultural College, Swanley, for Vegetables.

Silver Banksian Medals.—M. S. Cooke, Esq., Kingston, for Orchids; Major J. Joicey, Sunningdale, for Orchids; Mons. A. A. Peeters, Brussels, for Orchids; Messrs. R. & G. Cuthbert, Southgate, for Azaleas.

We must not close our report without paying a thoroughly deserved tribute to those who worked so indefatigably to make the Temple Show of 1897 worthy of the year of the Diamond Jubilee celebrations. Foremost amongst the workers must, of course, be placed the Rev. W. Wilks, of whose zeal everyone knows. Then there are Mr. J. Weathers, the Assistant Secretary; Mr. S. T. Wright, the Chiswick Gardens Superintendent, who in his own unobtrusive manner does a wonderful amount of work; and Mr. Humphreys, his assistant. During the afternoon T.R.H. the Princess of Wales, Duke of York, Princess Charles of Denmark, and Princess Victoria of Wales visited the Show, and Sir Trevor Lawrence, Bart., with the members of the Council, conducted the Royal party round the Show. Despite the rain, which fell heavily at intervals, there was a large attendance on Wednesday.



ROSE SHOW FIXTURES FOR 1897.

- June 7th (Monday).—Cambridge.
 „ 9th (Wednesday).—Chelmsford.
 „ 15th (Tuesday).—Ryde.
 „ 16th (Wednesday).—York.†
 „ 18th (Friday).—Portsmouth (N.R.S.).
 „ 23rd (Wednesday).—Richmond, Surrey.
 „ 24th (Thursday).—Colchester.
 „ 25th (Friday).—Maidstone.
 „ 26th (Saturday).—Windsor and Dorking.
 „ 29th (Tuesday).—Canterbury, Hereford, Sutton, and Westminster (R.H.S.).
 „ 30th (Wednesday).—Croydon, Ealing, Farnham, and Reading.
 July 2nd (Friday).—Crystal Palace (N.R.S.).
 „ 6th (Tuesday).—Diss.
 „ 7th (Wednesday).—Glasgow, Hanley,* Hitchin, Reigate, Leeds,† and Tunbridge Wells.
 „ 8th (Thursday).—Bath, Farnham, Gloucester, Harrow, Newcastle-on-Tyne,† and Woodbridge.
 „ 10th (Saturday).—Manchester.
 „ 13th (Tuesday).—Wolverhampton.†
 „ 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 „ 17th (Saturday).—New Brighton.
 „ 22nd (Thursday).—Halifax and Trentham.
 „ 27th (Tuesday).—Tibshelf.
 „ 28th (Wednesday).—Chester.*
 „ 31st (Saturday).—Liverpool.*

* Shows lasting two days. † Shows lasting three days.

The above are the only dates that have as yet reached me. I shall be glad to insert in the next list any farther fixtures that may be sent me, whether of Rose shows or of horticultural exhibitions where Roses form a leading feature.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

IN MEMORIAM—THE REV. E. N. POCHIN.

IN the earlier days of the N.R.S., and indeed long before its birth, there were two clergymen whose names were well known in the Rose world, but whom few in the present generation can recall to memory. These were the Rev. C. P. Peach and the Rev. E. N. Pochin. The former of these passed away some years ago, and the latter, as we learn from the Leicestershire papers, died on Wednesday last at Barkby Vicarage, in Leicester. He was born in 1829, and so was in his sixty-eighth year. He was a keen rosarian, and was about as good a judge of a Rose as any man I ever met. I have been associated with him in judging, and although he was somewhat deliberate in coming to a decision I can call to mind no instance in which his decisions were wrong; indeed,

I have rarely known them to be questioned. It was always pleasant to be associated with one whose geniality of disposition and ready and sometimes caustic wit made him so pleasant a companion. He was at one time a constant exhibitor, but latterly he had withdrawn himself from all public engagements, and so we were unable to look to him to be as he was before wont to be, one of the judges at our National shows. How often when there was some doubt as to the identity of a Rose has it been said by one of the judges, "Oh, ask Pochin!" and when he had said the name it was at once recognised as correct, and we wondered how we had been so stupid as not to see it before. And so one by one the veterans are called away, and the battle is left for younger men to fight. I can only wish that amongst them may be men who can grow and know Roses as well as our deceased friend. He was also formerly a frequent contributor to the pages of the Journal, and had always words of wisdom to say to us.—D., *Deal*.



THE WEATHER IN LONDON.—The wind continued bitterly cold and parchingly dry to the end of last week. The present week has been less bright, also somewhat milder, while on Tuesday a little rain fell in some parts of London—the first since the 5th inst. It has been a trying time for gardeners, and the growth of crops and trees has been seriously retarded. Yesterday (Wednesday) light drizzling showers fell at intervals, and while these would refresh vegetation they did not seem to materially prejudice the attendance at the Temple Show; but the day is not over at the time of penning this note.

WEATHER IN THE NORTH.—The bright sunshine that has prevailed throughout the past week has been tempered by persistent east winds, and the mornings and evenings have frequently been very cold. A slight rain fell early on Tuesday morning, and the atmosphere became a little more genial, but a deal more rain would be welcomed.—B. B., *S. Perthshire*.

NATIONAL VIOLA SOCIETY.—The first meeting of the Floral Committee was held in the Reading Room at the Royal Botanic Society, Regent's Park, on Wednesday, 19th inst. Owing to the early date, and untoward season, only a few Violas were staged, the only one gaining a certificate being *Endymion*, a pale yellow, superb blooms of this variety being staged by Mr. W. Baxter, Woking.

THE QUEEN'S VISIT TO SHEFFIELD.—Although the Sheffield Chrysanthemum Society was not able to carry out its wishes and decorate a floral arch on the occasion of the Queen's visit to the City on the 21st inst., it readily responded to the invitation of the Decorative Committee to decorate the Vestry Hall in Westbar, one of the halls in which the Mayor of Sheffield, the Duke of Norfolk, was giving an entertainment to the aged poor of the City. A large number of plants and a great quantity of cut flowers were freely supplied, and displayed in the most tasteful manner. We regret this is all that can be inserted of a report which reached us on Wednesday, the morning of the Temple Show.

PRESENTATION TO MR. THOMSON, DRUMLANRIG GARDENS.—We have received the following cutting from a newspaper, the name and date of which are not given:—"On Friday last a deputation from the working staff in the Drumlarnig Gardens, composed of Messrs. William Swan, Arthur Melville, and F. Maxey, waited upon Mr. David Thomson and presented him with a handsome marble timepiece as a token of their respect and esteem, on the occasion of his retiring from active life after twenty-nine years' service in the gardens. Mr. Swan, in making the presentation, conveyed to Mr. Thomson the best wishes of all the employes under him, and expressed the hope that he might be long spared to enjoy the well-earned repose which he purposed taking in the evening of his days. Mr. Swan presented Miss Thomson also with several handsome pieces of silver plate. Mr. Thomson, in reply, expressed the pleasure with which he received for himself and his daughter the tokens of the goodwill and kindly feelings of the employes under him. They would both highly value the handsome gifts, and ever cherish the remembrance of the cordial relations subsisting between them at Drumlarnig Gardens." We think Mr. Thomson relinquishes the charge of the Gardens on the 28th inst. into the hands of Mr. D. Inglis.

GARDENING APPOINTMENT.—Mr. G. H. Ackroyd, Beningborough Hall, York, has been appointed to succeed Mr. D. Inglis as head gardener, Howick, Lesbury, R.S.O.

DEATH OF MR. J. T. GIBSON.—We are informed that this late well-known London park superintendent died at Hackney on the 17th inst. The deceased was son of the late Mr. Gibson, who transformed a swamp at Battersea into one of the most beautiful of the London parks. Mr. J. T. Gibson was in turn Superintendent of Hyde Park, Regent's Park, and Victoria Park, retiring from the last named park through ill health about three and a half years ago on a pension allowed by the London County Council. Mr. Gibson was in his fifty-sixth year, and his remains were interred at Shenfield on Saturday last.

SHIRLEY GARDENERS' ASSOCIATION.—The monthly meeting of the above Society was held at the Parish Room, Shirley, Southampton, on the 17th inst., the President, W. F. G. Spranger, Esq., conducting the meeting. There was an excellent attendance of the members. The evening was devoted to a "microscopical demonstration" of botanical and entomological subjects. There were about twenty instruments, the whole arrangements being conducted by A. C. Rogers, Esq., Red Lodge Nursery, Bassett, who opened the proceedings by giving a brief address on the practical value of the microscope to the horticulturist and others, enabling them to trace, as in a slide containing a portion of coal which he was showing, the exact nature of the substance under observation. He advised all those who could to obtain an instrument, if only for pleasure, as he felt sure its use would charm the senses and delight the eyes of its possessor. The company then went the round of the microscopes, the subjects on view being constantly changed and described by those in attendance. A vote of thanks to the demonstrators was very heartily given.

WAKEFIELD PAXTON SOCIETY.—On Saturday afternoon 15th inst. a party of about twenty-five members of the Paxton Society (including a few ladies), paid a visit to the residence and grounds of Dr. Clark, Professor of Horticulture, Yorkshire College, Leeds, at Laurel Bank, Headingley, and inspected his large and magnificent collection of Tulips, which were greatly admired. The Professor clearly and fully explained to his Wakefield friends his experiments in growing and propagating Dutch and florists' Tulips, and imparted much interesting and valuable information. The visitors were entertained to tea on the lawn, and took back with them to Wakefield a large collection of Dr. Clark's specimen Tulips. These were admirably arranged on the tables at the Society's headquarters the same evening, and when the members assembled at the usual weekly meeting, the blooms were inspected with interest. Mr. W. H. Milnes presided, and Mr. B. Whiteley occupied the vice-chair. At the request of the Committee, Mr. Whiteley had, after the return of the party from Leeds, prepared a paper giving an interesting account of the visit to Dr. Clark's grounds, and detailing what the visitors saw and heard there. Mr. Whiteley said the professor's residence and grounds were prettily situated in the pleasantest suburb of Leeds. The grounds, which were 4½ acres in extent, were connected with the Professor's residence, which he has occupied for about six years. The grounds were on the slope of a well-wooded valley, and just now the foliage of the trees looked very fresh and healthy. One portion of the grounds was only annexed last year, and during the winter it was trenched 2 feet deep, and had recently been planted with 528 varieties of Gladioli, new sorts of Strawberries, a collection of Ruby Gem Wallflowers, and young and dwarf fruit trees. There was an Orchid house in the grounds containing some rare and valuable varieties. The chief and great attraction was an immense and magnificent collection—numbering upwards of a million—Dutch and florists' Tulips in no less than 700 varieties. Although the florist Tulips have not yet reached the blooming period, and notwithstanding that four recent hailstorms had destroyed many of the other blooms, there was a very large and most charming display of Tulips; some of the flowers being about 8 inches across. The various tints and shades were so arranged as to produce a striking effect, and looking down the long and sloping beds, and across the valley, the visitors gazed upon a sight which well repaid them for their journey, and reminded some of the party of their visits to the bulb farms in Holland. The Professor distinctly gave his visitors to understand his grounds were not a show garden, but were employed for experimental purposes, and it was evident from what he told the Paxtonians during their two hours' stay at Laurel Bank, that he has achieved great and important results since he began his experimental gardening there. Several floral novelties and wonderful "breaks" were pointed out to such experienced growers of florists' Tulips as Mr. A. Moorhouse and Mr. W. Calvert.



SUCCESS WITH ORCHIDS.

I ENCLOSE you a few Orchid blooms for your inspection. The forms of *Dendrobium nobile* are very interesting. You will observe that No. 2 has a complete absence of curl in the lip, which makes it very distinct. No. 3 is also distinct, being much more white than the original variety of *D. nobile*. No. 1 approaches the variety of *nobile nobilius*. The *Cypripedium villosum* is also of good colour. I should be glad if you would give me the name of the *Cattleya*. Is it a pale form of *Trianae*? I should like to say that these Orchids cost 1d. each two years ago, a box of sixty costing 5s.—W. J. GRACE, *Bickton Gardens, Fordingbridge*.

[The Orchids were very attractive. The results you have achieved are highly creditable, and must be very gratifying to you. Each variety is good. The *Cattleya* is a pale form of *Mossiae*. You have evidently made the best of a good bargain, and we trust your plants will still continue to make excellent progress.]

MANCHESTER AND NORTH OF ENGLAND ORCHID SOCIETY.

In their circular first sent out the suggestors of the above Society state that it is estimated that within a radius of thirty miles of Manchester the Orchid wealth of the country is centralised, and at the instance of several gentlemen in the district it was thought advisable to form a Committee, with head-quarters in Manchester, composed of amateur or private growers as separate and apart from the Orchid Committee of the R.H.S. Subsequent meetings were held, and the Society was formed. The Society is founded for the purpose of fostering and encouraging the growth and cultivation of Orchidaceous plants generally. (a) By the awarding of F.C.C., A.M., and cultural certificates, and by awarding prizes for Orchids in money or such other form as the Committee may determine, sums being voted from the Society's funds. The entrance fee is one guinea, and one guinea the annual subscription. The voting is by ballot. In rule 12 the Committee state that they shall cause a flower from every plant receiving a F.C.C. to be painted by an artist to be appointed by them at the expense of the person owning the plant, and such painting shall be the property of the Society, and shall be kept by the Hon. Sec. in a suitable and secure place for purposes of reference. The first meeting was held in the Coal Exchange on Thursday last, a room with excellent acoustic properties, and other meetings are to be held fortnightly, so as not to clash with those of the Royal Horticultural Society.

Considering that this was the first meeting the exhibits were more numerous than one would have expected, and the enthusiasm displayed by many of the Manchester gentlemen present augured well for its success as a permanent and lasting good to all Orchid lovers in the North. Private growers made an admirable display, foremost being Mr. Lofthouse, gardener to A. Warburton, Esq., Vine House, Haslingden, who had grand and well-flowered forms of *Laelias purpurata* and *purpurata Schröderae*; *Cattleyas Mossiae* and *Mendeli*, very fine; *Oncidium Marshallianum*, *Brassia maculata*, *Dendrobium Jamesianum*, and excellent *Odontoglossum crispum*, amongst which was a giant form, quite the largest we have seen.

Mr. Alexander Hay, gardener to R. Shorland Ball, Esq., Wilmslow, had a handsome collection in choice variety, every plant being well grown and finely flowered. Conspicuous were *Cypripedium Schröderae splendens*, *Odontoglossum vexillarium*, *Dendrobiums Jamesianum* and *Dearei*, *Cattleyas Mossiae* and *Schröderae*, a well-cultivated *Cattleya Skinneri*, and *Masdevallia Veitchi*. Mr. W. Stevens, gardener to W. Thompson, Esq., Walton Grange, Stone, Staffs., was noted as usual for varieties of the highest quality, and had a deserving honour conferred upon him by gaining five certificates out of six exhibits.

R. Ashworth, Esq., The Ashlands, Newchurch, had *Cattleya Mossiae*, *Cypripedium Rothschildianum*, and *Cattleya Mendeli vestalis*. G. W. Law-Schofield, Esq., New Hall, Rawtenstall, had a fine and well-flowered plant of *Cattleya Skinneri superba*, also *Laelia purpurata* and *Cattleya Mossiae*. Duncan Gilmour, Esq., Sandgate, Sheffield, had an attractive collection, comprising *Cattleyas*, *Odontoglossums*, and *Dendrobiums*—small plants, but nicely flowered.

Interesting, too, were those set up by Mr. Spurr, gardener to H. Greenwood, Esq., Highfield, Haslingden, amongst which was a noticeable plant of *Anguloa Clowesi* with deep lemon-coloured blooms. Mr. Shiner, gardener to E. J. Sidebotham, Esq., exhi-

bited *Dendrobium Jamesianum* profusely flowered. Messrs. Jno. Cowan & Co., Ltd., The Vineyard, Garston, exhibited a large and diversified table of Orchids in bloom, including some excellent types of *Laelia purpurata*, both light and dark varieties, *Cattleyas Mossiae*, *Dendrobiums clavatum*, *Dalhousianum*, *Devonianum*, and *crepidatum roseum*, with *Laelia flava*, altogether a splendid contribution.

The Committee sat from twelve to one, and in that time had granted the following awards—viz., first-class certificates to W. Thompson, Esq., Stone, for *Odontoglossum crispum Annie*, a magnificent long-spiked rose variety, heavily blotched with crimson; *Odontoglossum excellens Thompsonianum*, with pale yellow ground, having sepals and petals banded chestnut brown; *Odontoglossum aureum sceptum*, a variety in light and rich shades of yellow; *Cattleya intermedia alba*, perfect and greatly admired; and *Cypripedium Rothschildianum giganteum*. R. Shorland Ball, Esq., for a handsome *Lycaste Skinneri alba*, well flowered; for the rare *Cypripedium callosum Sanderæ*, and an award of merit for *Cattleya Skinneri alba*. G. W. Law-Schofield, Esq., secured awards of merit for *Cattleyas Skinneri oculata*, also for a fine bloom labelled *C. Gaskelliana alba*, but which partook more of a *Mossiae* type than the true *Gaskelliana alba*. Of course there are a few matters that will be righted as the Society progresses, but a good beginning has been made, and in Mr. Shorland Ball, the Hon. Treasurer, and Mr. Gent, the courteous and willing Hon. Secretary, the Committee have two gentlemen who will do all in their power to keep the Society up to a very high standard.

CERASUS VIRGINIANA.

SOME years ago there was a tree growing in one of the belts on the south boundary of the old Chiswick Garden which attracted the attention of lovers of trees when it was in bloom, and which was erroneously labelled *Cerasus capollin*. That it was not *Cerasus capollin* was evident from the broad ovate lanceolate leaves and the bold erect leafless racemes of flowers. It was a tree which engaged Loudon's notice, and in the "Arboretum et Fruticetum Britannicum" he remarks, when treating of *Cerasus capollin*, that the flowers produced on a plant bearing this name in the London Horticultural Society's Garden are not those of that species. "Its leaves also are much too broad and elliptical; and the leaves, the flowers, and the whole tree bear so much resemblance to *C. virginiana* that we have no doubt of its being only a variety of that species, but of larger and more luxuriant growth."

Of the tree thus referred to a representation is given; at the same time we do not consider it the *Cerasus virginiana* of Michaux, neither is it the *Cerasus Padus* of Decandolle as some have supposed it to be. After a careful examination we have come to the conclusion that it is the true *Prunus virginiana* of Linnæus, and the *Prunus Cerasus rubra* of the "Hortus Kewensis," ed. 1. It differs from *Cerasus Padus* in the habit of the tree, which is stronger and more rigid and luxuriant; in the glandular leaves, those of *C. Padus* being eglandular; in the long, rigid, erect, leafless racemes, those of *Padus* being drooping and leafy; and by its later flowering, which is not till the middle of June. It is a tree of great beauty which appears to be very little known. The spray represented was grown in the garden of the late D. Hogg.

[This will be of use to others besides "Devonian," page 469.]

WEDDING BOUQUETS.

FLORISTS of all descriptions have been extremely busy this season, and seem now to be entering upon an era of still greater activity. Having to be "up to date" in all matters connected with floral decorations, I recently took the opportunity of conversing at some length with one of the leading Court florists as to the style of decorations in vogue for the present season. Among other things bouquets were touched upon, and it seems that there are no startling differences in the style of them this year, with the exception of orders executed for a few individuals who may be termed faddists, whose ideas do not take with the general public.

Shower bouquets are as popular as ever, and whoever hit upon this bright idea seems to have grasped one which has come to stay, for when well made this style of bouquet is one which will be very hard indeed to surpass. The round and conical bouquets are still much liked, and a very noted Court florist still executes the majority of his orders in this style, varying the size of them, and at times having a few strings of flowers depending from them. Favourite flowers for making bridal bouquets are Lily of the Valley, Gardenias, white Orchids, Freesias, White Carnations,

Stephanotis, with a little Myrtle, Orange blossom, and Asparagus plumosus nanus intermixed. Malmaison Carnations are in great demand for bridesmaids, and so are yellow, pink, and red Roses, Ixias, Plumbagos, and Marguerite Carnations. Trails of Asparagus deflexus are also largely used for hanging from the bouquets, with a few flowers wired to them.

Making a bouquet seems to some persons a formidable task, but like all work connected with floral decorations it becomes simple enough with practice, provided the operator has a fair amount of taste and liking for the work. All flowers used for the purpose should be wired, and it is by doing this in a suitable way that the road to success is found. The style of flowers used varies considerably, and each must be treated in a way suited to its peculiarities.

Let us take, for instance, Lily of the Valley. Every flower of these ought to be wired with thin wire the whole length of the stalk, twisting the wire deftly between the bells. Roses require stouter wire to be passed through the calyx, and, in the case of those almost full blown, through the base of the petals. Eucharis should have a thin wire pushed through the tube of the flower just under the cup, a little cotton wool may then be wrapped round the tube, and the flower be mounted on a stiff wire. Gardenias and Carnations need one or two fairly strong wires to be pushed through the calyx, the ends being then twisted together. Orange blossom and Stephanotis should have every pip wired. Many Orchids require very careful handling to prevent injury, and in the case of such a little cotton wool should be placed around the stem or tube of the flower before the wire is twisted around it.

When the whole of the flowers and a good amount of Asparagus has been wired some should be mounted on longer wires, and others made up into little loose bunches with some greenery intermixed. To illustrate my meaning, let us suppose that a bouquet is to be made entirely of Lilies of the Valley. If three or four spikes are wired together, a leaf added, and the flowers then arranged in position by bending the wires slightly so that they stand almost clear of each other, it is easy to comprehend that a number of these little bunches fastened together could be made to form a bouquet of almost any required shape. Now let us suppose that Gardenias and Lilies are to be used in combination. The former must then be used as a groundwork, with spikes of the latter standing well up above them here and there, a few leaves

of Asparagus plumosus nanus being also mixed in as the work proceeds. These two illustrations will, I think, serve to show the manner of dealing with flowers of various types; the principle is to use the heavy ones for groundwork, with sprays of spiky flowers rising above them.

In making bouquets an important point to remember is that the weight should be kept as low as possible, therefore no more material ought to be used than is absolutely necessary. For very large ones it is sometimes necessary to use a central stick, but for those of moderate size it may be dispensed with. At the start I usually bind up a neat bunch to form the centre; the stems

of these flowers being strongly wired gives a firm foundation to work upon. For binding I prefer string to wire, as it seems to hold the flowers in position better, and by giving it a half hitch occasionally there is no fear of slipping. As each ring of flowers is added a little moss should be worked around the stem of the bouquet, to enable the operator to fasten them in the exact position required; but as little as possible ought to be used, as it adds so greatly to the weight.

If any difficulty is experienced in fixing the flowers exactly as required, a few sprigs of Box may be wired and worked in between the stems of the flowers, the points of the Box, of course, being underneath the flowers. As the bouquet increases in circumference longer and stronger wires must be used for mounting, and if several small bunches are fastened to one main stem the handle can be kept quite small enough to draw through the bouquet paper with ease. Before

this is fastened on a fringe of the Asparagus should be placed around the flowers, allowing it to project far enough to almost hide the paper when placed in position. Shoots of Myrtle must always be intermixed with a bridal bouquet, and these ought to rise well above the flowers. The addition of a wickerwork or paper holder, with a few ribbons to match the colour of the flowers, completes the arrangement. The holder must be secured to the paper with strong pins, made expressly for the purpose.

In making a shower bouquet a somewhat different form of procedure has to be pursued. The body of it in this case may be either round, rather flat, or conical, as taste may dictate, and when this part is made up the "showers" should be constructed separately. They are formed on the same principle as long slender shoulder sprays, starting from a very thin point; the shower gradually widens as it increases in length, and may be from 3 to



FIG. 91.—CERASUS VIRGINIANA.

4 inches in width at its widest part—i.e., where it is to form a junction with the body of the bouquet. These showers should be finished off with a strong stem, and then tied to the body of the bouquet, in the front of it; the back will thus be rather high and straight, so that the showers appear to fall from the hand or down when the bouquet is carried. Special papers are made for bouquets of this style.

A modification of the shower bouquet, which is now much used, is of the old round form, with two or three strings of flowers depending from it. The flowers forming these strings are simply wired together in little bunches, and the ends of the wires cut off level with a strong pair of scissors; each little bunch is then held between the fingers in an horizontal position, and a strong green wire bound around the centre of the wire stems. I think the matter will appear quite clear to anyone when I say that when completed and fastened to the bouquet they represent little sheaves of flowers dangling on a string from it. Bridesmaids' bouquets are usually much smaller than those of the bride, and may be made of flowers of any colour, but only one colour should, as a rule, be used for each.—H. D.

NOTES FROM IRELAND.

SELDOM, probably, has the season now with us been fraught with more anxiety or beset by so many petty vexations to those who, as farmers or gardeners, look to the land for its manifold gifts to reward their labour and care. At present an active endeavour to overtake long-deferred arrears of work shelves for the time any analysis of prospective results, and even those who can pause and consider the question could neither venture to build any great hopes on present appearances nor find sufficient ground for despair.

One cursory glance over the past ten months, independent of weather statistics, leaves the vague impression that it has been one long wet period; a broken summer following the abnormal drought prevailing until July, 1896, was well in, then a dripping autumn, followed by a winter of many weathers highly diluted with water, and the wet spring up till recently has kept the land saturated, prohibiting to a great extent the normal work of preparation. This at least is the case in heavy retentive soils of the limestone district, and now, in the middle of May, Potato planting is yet in operation.

My friend the busy man is not, so far as farming operations are concerned, complaining at present, although he grumbled both loud and deep during the weary waiting previously. There is, indeed, no time for lamentation with carts going in one direction, brakes, harrow, and roller in another, whilst ever and anon the rooks go screaming off one corner of the farm at the smell of his powder to drop silently into the other. It is a stirring time truly; even the steady farm horses as they come up between the long lines of field Peas seem to catch the spirit of activity, and require a good deal of managing by the driver to tack them on the headland as he breaks between the drills or moulds them up. The effects of this stirring are quickly seen in the colour and growth of the plant. On a warm southern slope nearer to Dublin we saw several acres of Dickson's First and Best in bloom on May 10th. This variety finds favour in leading for market purposes, and William I. comes second.

Another important crop is Strawberries, of which it is as yet premature to speak, but the busy man thinks highly of Royal Sovereign for forcing; there is, in fact, sovereigns in it, and those I saw with him were very handsome. Catering for the market is a fairly good test of general utility. How well the Wheat looks; it was lately harrowed and rolled, looking very miserable after the operation for a couple of days, yet it is wonderful what the stirring did for it; it is now grand, in spite of chilling east winds and frosty nights. Frosty nights in May, and nothing growing except the Wheat. Such has been the case up to the 15th; vegetation generally seemed arrested, yet there is no great evidence of damage so far. Forest trees clad in tender shimmering green, the earliest of which to dress appeared to stop midway in the operation, and the latest, such as the Oak and Ash, now clothing themselves simultaneously, make spring appear for the nonce universal in its garbing.

Frosty nights and the fruit? There is no tale of woe at present. Cold, sunless days up till recently were, perhaps, under the circumstances, the kindest things we could have. There should be a little fortune in spring Cabbage now, but our expert growers have found difficulties in this direction as well as with Broccoli; a complaint which has, apparently, been general. Such things, possibly, enjoy a season of rest at the decline of the year after being established, such as is afforded by dry weather, and failing this attenuated rather than consolidated growth leads to bolting in the Cabbage tribe and all sorts of vagaries among the Broccoli.

Glorious are and have been St. Brigid's Anemones in the borders, giving welcome tones of colour amongst almost overpowering masses of golden Doronicums. One should, however, hardly tire of what has been the most useful of hardy flowers for cutting, improving after being twenty-four hours in water. Every year we like to strike a note of admiration by sounding the praises of Tulipa Gesneriana; it stands so well when cut, and makes a fine decorative object in bowls of wet sand. All our Daffodils this year were gathered in the bud stage to open in a temperate house ere used for furnishing. Their lasting properties appear to be enhanced by the process, the ends of the stalks being again cut before placing in the vases. Some beautiful boxes of N. Emperor came direct by parcels post from Scilly, but their keeping qualities were unfortunately limited to a few hours after the journey. From one of our chief Dublin florists were received superb samples of a giant single Violet. They were at the time thought to be "California," but after noting expressions of opinion upon that variety, with the unqualified praise given to Princesse de Galles, doubt has arisen; anyway, the blooms alluded to resembled a highly glorified Czar.

On the lawn a huge Snowy Mespilus developed all its charms; it was, indeed, a thing of beauty. How bare the old Castle looked after its annual cropping of the Ivy! But it is the right thing to do, and was done at the right time—just as life was stirring in the old stems, and tender fresh foliage is now springing out from base to turret. We noted, in driving through the Phoenix Park, how bright the "People's Gardens" looked with spring flowers *en masse*; particularly gay were the Tulips. One is pleased to see additional character developing in this noble park, as evidenced by a broad, bold planting of Cupressus macrocarpa, securely fenced in from the deer. The venerable Thorns are somewhat late in blooming, for the Park lays high, and is swept by chilling winds. Through March and April many a bright patch of Anemone fulgens brightened the small holdings on the sunny banks overhanging the Liffey. On these dry slopes early Strawberries and early Peas revel in a copious rainfall, and the acute angle facing due south is a veritable sun trap, when there is any sun to be trapped. What a field, too, for Daffodil culture if these small cultivators could be stirred up to grow some of the more popular varieties!

In traversing this picturesque valley of the Liffey an unsatisfactory feeling obtains that retrogression is the order of the day. So many spots where "once a garden smiled" are now scratched by hens or browsed by goats. One cannot but think that many stray sixpences would be left here by the thousands of city folk, who come on "pleasure bent," in exchange for posies or roots, or fresh-gathered fruit. Any inquiry on this head is met with the ready response, "It doesn't pay;" but the answer is unsatisfactory, especially in noting the high price paid in Dublin for travel-stained goods of this description, the bulk of our city toilers regarding such things as luxuries beyond their reach. It is so, but it should not be so.—K.

TOMATOES FLAGGING.

ON page 430 of last week's *Journal* Mr. H. Pearl, after speaking of the dreadful flagging in his Tomato plants, asks Messrs. Abbey and Dyke "What is the cause, and what can be done in the dilemma?" The cause of the flagging, drooping, sleeping, or collapse in Tomato plants is a subject which has been so fully dealt with and described in the pages of the *Journal of Horticulture* that I should have thought by this time every Tomato grower would have been perfectly familiar with its cause. To refresh your correspondent's memory, however, I may say that the flagging is no doubt caused by the growth of a minute fungus (*Fusarium Lycopersici*) in the roots and stem of his Tomato plant. I know only too well the feeling of your correspondent, for I have experienced the same myself, and, therefore, realise how very disheartening it is to see what appears to be perfectly healthy plants to-day flagging and dying the next.

The fungus causing the flagging disease in Tomatoes grows from spores which are present either in the soil in which the plants are growing or in the seeds themselves. When the spores are in the soil they germinate and produce a very tiny thread-like body (hyphæ), which on coming in contact with a Tomato root is able to penetrate through the outer layer of cells into the vascular tissue. If a flagging plant is taken from the ground and the stem split or cut in a longitudinal direction, a certain portion of it will be brown in colour. This brown portion—if the plant is taken up as soon as it commences to flag—is the vascular tissue, and is the part of the stem where the chief supply of water or crude sap passes from the roots into the leaves. When by the presence of the fungus the cells of the vascular tissue are disorganised they cannot perform their proper functions, the supply of water is cut off from the leaves and stem, and the plant flags and dies. When the spores of the fungus are in the seeds they germinate and develop at the same time as the plant, ultimately producing its death.

What can be done in the dilemma? This is a question I have for

a long time been trying to solve, but so far I have not yet succeeded in doing so. I know that as a remedy 1, 2, and 4 bushels of lime have been recommended, but this has been tried and found wanting. Kainit and basic slag have also been recommended, but these substances have been tried with no better result; for this year I applied to the soil in my Tomato houses 1 lb. of kainit and 2 lbs. of basic slag per square yard, well mixing with the soil before planting, but still some of my plants are dying with sleepy disease. I would strongly recommend your correspondent to read what Mr. Iggulden says about this disease on page 175, for there he will see that the above writer has found water his best remedy, and I can partly endorse that statement. Owing to pressure of time I must now leave the subject, but I will return again to it in the near future.—W. DYKE.

INSECT INVASION.

WITH eyes that are ever on the watch, the presence of the earlier aphides, at any rate in our houses, may be detected and stamped out. Thrips, too, may be detected, and the remedy for the aphid is equally death to the enemy. But there is a smaller pest which does an infinity of mischief, and is not so quickly discovered. In the houses this, since I have used the vaporiser, I have found far more troublesome than aphides—I mean red spider. I dread the insignificant little wretch far more than the aphid, and for this reason, that in all probability you never see him until you notice his handiwork, and then he is in full possession.

There are certain conditions that favour this pest, the most important being a hot dry atmosphere. Amateurs like to have their greenhouses dry underfoot; a sloppy moist floor does not give a pleasant footing to friends, and this kind of house red spider enjoys. Nurserymen, I fancy, suffer from this plague far less in proportion than we amateurs do, the secret of their success being the thorough soaking the houses get at night and morning, making a moist atmosphere almost perpetual, which our little enemy dislikes. To keep the rascal in check, this thorough soaking is a great assistance. Sulphur on the hot-water pipes also disagrees with the mites, but then this needs most careful handling by the tyro, and who, while he may settle his enemy, may also settle many a plant that the spider had not touched.

I once had a Peach tree three or four years old covered with a glass roof, the end of which was perfectly open. I found the tree badly attacked by red spider. The stem of this tree was 2 inches in diameter and 6 feet high, so that the branches running on wires under the glass were at least 8 feet off. I thought I would quickly rout the intruder, and placed two or three small patches, not larger than a shilling, of flowers of sulphur on the ground, and lighted these, the end of the place remaining open. What the spider thought of I cannot say, but the tree simply gave the battle up and died at once. If this happened under glass that had plenty of vent, with one end completely open, it is easy to see how excessively careful one need to be in employing such a remedy with closed doors and windows.

Latterly I have tried the suggestion of our friend Mr. W. Taylor, and when I use the XL vaporiser I add to the liquid a half teaspoonful (I am feeling the way) of sulphurous acid—mark it is sulphurous acid, not sulphuric, which is what a person hesitating about the name would be almost certain to have given him if at a chemist's. On some plant that I do not care about losing I mean to try a diluted acid, spraying it. Certain plants seem to favour the advent of red spider. Setting aside Melons and Cucumbers and the Vines, I have found Fuchsias, Salvia Halleri, Tuberoses, Bouvardias (badly), Tecoma Smithi, Roses, and Abutilons invite the pest; this, at least, is my experience.

But how many amateurs know red spider? I have seen the scarlet spider often seen on plants out of doors, about the size of two fat green flies rolled into one, called red spider—well, red he certainly is, but this is not the enemy I am now speaking of. I know some people who can see red spider on a leaf with the naked eye; I might have been able to do so in days long since gone by, but not now. However, I always have my magnifying glass in my pocket, and submit a doubtful leaf to the strictest scrutiny by its aid. So far as I have seen, and I have seen many more than I wanted, comparatively few of these gentry merit the adjective red; most of them are yellowish, and the larger may have a darker spot on each side of the body; they are mostly on the under part of the leaf. If the plant is much infected, and in the angles formed by the stem of the leaf something like a web may be seen, I think the case very bad. Sometimes no spider is visible, but over the under surface of the leaf are a number of, as it were, microscopic drops of water, little shining greenish pearls. Are these the eggs? I think they are, for at times I seem to have caught the moment of hatching, and have seen the pearly drop still glistening, but now furnished with legs.

No plant can be long healthy that red spider inhabits. Its leaves lose their green colour, look sickly, and are thickly spotted with very small white spots. Those who have once seen and marked such a leaf would easily recognise it, and without searching for the pest give a verdict of red spider. If the plant be in bloom you cannot syringe all blooming plants without injuring the flowers; but it may pay to syringe them night and morning, for with red spider in abundance the bloom cannot be good. The pest is so diminutive that I do not know of any other insect that thinks it worth while to feed on it. I wish there were many.—Y. B. A. Z.

YOUR sprightly correspondent, who arranges his alphabeticals in such a fanciful way, "Y. B. A. Z." (page 437), cannot understand

"if the pest be aphides what can be done as a preventive." Well, if the aphides are already there the "preventive" stage is obviously past. It would then be a case of destruction, not simply of prevention, and I have always found it better to prevent than destroy even insect life—easier, cheaper, and more merciful.

It has fallen to my lot to have been nearly killed myself in trying to kill hordes of insects which had been allowed, if not encouraged, to swarm on plants and trees under glass. I was in a subordinate position then. If the same sad experience of being nearly killed in the work of butchery should recur now I should say it would serve me right. It would be the penalty of neglect, lack of observation and promptitude in action; or of mistakes in management or errors in cultivation.

Our friend seems very well able to kill aphides, also, no doubt, other insect pests; and he gives good, but not the best, advice when he says "The presence of a few pests should be the signal for immediate fumigation, or, as he seems to prefer, vapourisation." I have not had occasion to try the punishing power of the last-named operation on aphides, as they have been easily enough mastered in the old way, and with the old means—i.e., prevented; and if instead of waiting till he could see even a "few insects" (and fail to see ten times more that would probably be not far distant) he had fumigated or vapourated before they were there, he would then perhaps not be able to see any insects at all, because there would be none. If he were to pursue the practice of light periodical fumigation when his plants or trees were thoroughly healthy and clean he would find a saving in material, and need not give himself the least trouble about cooking "aphid eggs," because without a "few aphides" he would have no eggs to cook.

The ruminations of "Y. B. A. Z." on turning plants out of greenhouses at this time of the year for scrubbing and cleaning to rid us of green, brown, blue, and black aphids are beside the mark. The insects need not be there, and would not be there if a man have the means at hand to prevent them; and if our alphabetical friend were a gardener, as presumably he is not, as he tells us he is "an ignoramus" (which is not quite the way of gardeners), and moreover if he were my gardener and reared such a varied assortment of aphides on my plants as he enumerates, I should be apt to think the best way of dealing with them would be by getting rid of him.

Some persons appear to be in their glory among insects, which they seem to tend so lovingly and write about so entertainingly prior to the slaughter—if they ever do slay them—that I should not be very much surprised to hear of some of them sending samples for the Editor to grow in his garden, and then make experiments in killing them. I am not made in that way, but prefer growing plants, Peaches, and Grapes without an insect on them. This is actually the case with many at the present moment, and will be throughout the season, the direct result of taking action before any insects appear. Perhaps "Y. B. A. Z." will now better understand the theory and practice of prevention.—W.

[We know our correspondent as an experienced gardener, but did not know he was a prophet also. It is a fact that someone has sent us a box containing thousands of active mites, known as red spider—a veritable swarm, quickly thrown in the fire, and if there were a letter in the box it went there too. We had seen quite enough, without searching for more.]

THE MELON AND ITS CULTURE.

THE Melon is the richest and most highly flavoured of all the fleshy fruits. It is often said to be a native of the central parts of Asia and of Jamaica, and to have been first brought into Europe from Persia; but the date of its first culture is so remote that there is no certain knowledge on the subject. The Melons of Persia have long borne a high character. In 1824 Mr. Willock, Ambassador to the Persian Court, sent a parcel of seed, and another parcel in the spring of 1826. An account of ten varieties of these Melons was read before the Horticultural Society in September 1826, and the individual fruits referred to were the produce of the Society's garden that season.

In reference to present day culture, experience teaches that for producing abundant supplies of this luscious fruit in succession from early summer till late autumn, we must have the aid of light and well-heated houses. It is not my intention to treat on frame culture. These houses are of various styles—lean-to, span-roof, three-quarter span, and hip-roofed. I have seen excellent crops obtained in houses built on each of these principles; though the house which produced ripe fruit in the least time was an old flattish-roofed lean-to, sunk some 3 or 4 feet into the ground, with sliding ventilators in the back and front walls, with an ample supply of 4-inch piping attached to a powerful boiler. The gardener formerly in charge of this house as a rule cut fruit by the 10th of May, say about eight to ten weeks from planting, from seed sown about the 1st of January. A high, moist, genial temperature could always be maintained in this house with comparatively little trouble.

RAISING SEEDLINGS.—Various methods are adopted for raising plants. Some persons sow the seeds in square blocks of turf, but this practice is not recommended, because the tender rootlets are very liable to injury by the hot sun when they protrude through the sides of the turf. Others sow several seeds in a pot, afterwards potting the plants singly. But I think the best and most reliable method is to place one seed in a 3-inch pot half filled with loam, over a crock or a bit of rough material for drainage; this applies to the earliest plants raised in January or February. In the case of later plants with quicker growth and an increase of sunshine the soil dries more rapidly, then rough turf alone suffices for drainage.

If seed be saved at home and therefore plentiful, three seeds may be sown in a pot, and if they all germinate, reduce the plants to one, retaining the strongest; as soon as the plants are large enough, top-dress with loam pressed firmly into the pot, and to each plant affix a small stake. Care must be taken, as in potting all plants, that sufficient space be left to hold water enough to percolate through the whole mass of soil. Many growers recommend plunging the seed pots in a hotbed. This, without doubt, hastens germination and root action, though the plants may not be quite so strong and sturdy as they would be without this aid. We rarely plunge them for fear of cockroaches and woodlice, but place them on a shelf in the Pine stove, and generally cover each pot with a small piece of glass and shade with a newspaper. This is removed as soon as the plants appear, but shading is applied when necessary. As the small pots become fairly filled with roots, the plants may be transferred to 5 or 6-inch pots, which must in all cases be perfectly clean and dry. Use good fibrous loam, pot firmly, and assign the plants a light position, shading as required until they are able to stand the force of the sun. This applies also after they are planted in their permanent quarters. The plants must never be allowed to suffer through drought.

We will leave these plants to grow apace whilst we consider the preparation of the bed, where they will eventually be planted. In days gone by, and even at the present time, beds were and are to my mind very much larger than the needs of the plants require, whereby a far greater amount of risk to canker is run and much greater care needed in the application of water than where the roots are more restricted, although the watering of Melons is an important item at all times in their successful culture. Bottom heat is, without doubt, of great benefit where fruit is required very early.

I will now endeavour to describe our Melon beds, which are boxes and troughs—some made of wood, others of portable slates. For many years Melons have been grown successfully at Grimston in slate boxes or troughs, placed about a foot above the hot-water pipes, in what were span-roofed Pine stoves. They have lately been removed to another house, where instead of the pipes being under them they run close along the back. These boxes are 6 feet long, 1 foot 8 inches deep, and about 2 feet wide, sides and ends removable. The crops produced from these boxes have invariably been good. The boxes are always heavily drained. We also grow Melons in a wooden box, 16 inches deep and 18 inches wide, with capital results.

Our second crop last year, which ripened about the middle of June, was grown between three 11-inch boards, 3 inches extra being allowed in depth for drainage, which was composed of moderate sized clinkers, so that the average depth of soil was about 8 inches. As evidence that the results were of the first order, well-known gardeners stated they had never witnessed an equally good example of Melon culture before.

Under this circumscribed root-space system a much richer compost may be employed, and a very careful eye is needed to the watering. This is the point which pleases me—namely, when the fruit is swelling, watering and feeding can be given more freely without fear of canker. Another experiment was tried in 1894, both with regard to depth of bed and mode of training. (I will allude to the training later). The bed was made in a well-drained box, which measured 4 feet 6 inches in length, 2 feet 4 inches in width, and contained two barrowloads of compost. In this we placed two plants of Beauty of Sion, which ripened eighteen handsome fruits, weighing 36 lbs. This is not a large variety. In 1895 we put in two plants of a variety of our own raising, which produced thirteen fruits, weighing 60 lbs., the heaviest fruit turning the scales at 6½ lbs. We call it Grimston Hybrid. It is a white-fleshed Melon of good quality, very juicy, and of robust habit. I think these instances prove that Melons can be grown in a small space, and without the aid of bottom heat.

I like plenty of good open drainage, covered with litter or thin sods, using moist soil, well rammed down, but not "hard." We use the best fibrous loam we can secure, mixing with it about a sixth part clay, a twelfth part good wood ashes, and sometimes a little 'dry fowls' or pigeons' manure, say a 7-inch potful to a barrowload. The compost is put in long enough before planting to allow it to become warmed. In planting we use a trowel, and allow ample room to pack the soil well round the ball. The plants are from 1 foot 6 inches to 2 feet apart. Should the soil be at all dry we give it a good watering a few days before planting, and also see that the ball of each plant is thoroughly moist. About a week the whole is again watered.

Each plant is secured to a stake, and thus conducted to the trellis, and we are mindful not to tie too tightly. To grow Melons at an express pace they must have abundance of heat and moisture, 65° to 68° at night, 70° to 75° by day, with a rise of 10° by sun heat, ventilating very cautiously, and closing early to obtain as much heat as possible; 100° or 110° will not hurt, with plenty of moisture.

TRAINING.—Various methods are adopted in training Melons. First, the simple cordon; second, by topping several times. I like to top at the first wire of the trellis, taking up three leaders; by this plan more flowers are obtained for fertilisation on the same day. It is not at all difficult to get six or eight fruits to a plant. This number of fruits for small varieties might be too many where it is the desire to increase the size, though in the case of larger varieties it is preferable, as very large fruits are not always appreciated. Setting is best done in the middle of the day, when the pollen is dry and the flowers at their highest state of perfection. Care must be exercised where seed-saving is done to avoid intercrossing. For supporting the fruits I am very much in favour of nets, preferring them to boards or baskets. In watering we do it thoroughly when required, and with tepid water. Feeding may be

accomplished by the use of some well tried fertiliser, or by careful use of the drainings from the byre. Syringing is not necessary, except through the early stages of growth or in case of an attack of red spider.

As the fruits approach the ripening stage less water is supplied to the root, yet sufficient for the well-being of the plant. A drier atmosphere is also maintained, also air freely admitted. This enhances the flavour of the fruit, which is very important. Where Melons are required daily over a long season it is wise to sow about every fortnight, so that plants may be ready as required. As to diseases, canker is the worst affection of the Melon, but if the plants are grown on the plan here described the risk of this will be greatly reduced. Should it occur rub the affected part with powdered charcoal, lime, or cement. They are most liable to canker at the collar, and various means are resorted to as preventives, Knocking the bottoms out and plunging the pots in the bed is one way, keeping the rim of the pot well up above the bed, afterwards not allowing any water to come near the stem. We use leaden collars, filling these with powdered charcoal, lime, wood ashes, or sulphur.

To check red spider we syringe the plants with sulphur mixed in softsoapy water. Another pest which has caused us much anxiety is the centipede. They attack the plant at the collar and eat right up the stem if not checked. All may seem well and promising, especially if the weather be sunless, till the first bright day, when the flagging of the foliage indicates that all is not well. I find the material recommended for canker is also a hindrance to the centipede. I may add that we have lost fine Cucumber plants when covering a square yard of the trellis through this pest eating the stem entirely away. I spoke to an authority on gardening one day about the matter, but he seemed to put some doubt on my statement; and Mr. Clarke of the Yorkshire College told me that attention was now being given to the subject.

The following are good varieties of Melons:—*Scarlet flesh*, Read's Scarlet, Scarlet Premier, and Blenheim Orange; *white*, Colston Basset, Hero of Lockinge, and The Countess; *green*, Eastnor Castle. For frames Golden Perfection.

A few last jottings—1, January is early enough to make the first sowing. About four months under genial treatment are required from sowing to the ripening of the first crop. 2, Abundance of sun is required to produce the desired flavour. 3, The fruits ought to be kept a few days after cutting before sending to table. 4, Old seed is preferred to new, and will keep good for many years.—JOHN SNELL, Foreman, Grimston Park.—(Read at a meeting of the Leeds Paxton Society.)

SPRING FLOWERS AT BELVOIR.

HAVING lately had an opportunity of visiting this, the home of spring flowers, a few notes, without attempting a description of the establishment, may be of interest to those who cannot avail themselves of a similar pleasure. As is well known, owing to the kindness of the Duke and Duchess of Rutland, the flower gardens and slopes near the castle are thrown open to the public daily, Sundays included. No charge is made, and visitors are allowed to ramble at will throughout the beautiful surroundings. This is appreciated by tens of thousands during the year, and to their credit it may be said that it is only on very rare occasions that complaints have been made of damage to either flowers, plants, or trees.

A visitor was overheard to remark, "I have not missed seeing the spring flowers at Belvoir for twenty years, and they are better this season than I have ever seen them." Another, when he came in sight of the Duchess's garden for the first time, exclaimed, "It is grand." With the latter I agree, for though there were some plants, such as Hyacinths, which were past their best, the display compared favourably with former years. This must be gratifying to Mr. Divers, who succeeded the late Mr. Ingram, of world-wide repute in this particular branch of gardening, as he has tried with good effect many plants that had only previously been grown on a limited scale.

One of the best of these is *Phlox divaricata*, forming a mass of bloom not easily to be forgotten, and where Tulip Couleur de Cardinal was used in conjunction with it the combination was considered by many to be one of the most pleasing in the gardens. *Aubrietia Leichtlinii* is used extensively, as is *A. græca*. Both the above are selections, and are better than one usually sees them. *A. Ingrami*, a new variety, was blooming freely, the individual flowers of which are larger than the two latter. Another very telling bed was *Myosotis dissitiflora* and Tulip Chrysolora (yellow). Cliveden Purple Pansy and Tournesol Tulip made a pleasing combination, as also did Harbinger Primrose and Tulip Vermilion Brilliant.

In the Duchess's garden, situated on the side of a hill, and protected from the north-east and west, and open to the south, many plants and trees grow freely that are not often to be found so far north. A fine Camellia was observed in robust health and covered with bloom. Large masses of *Bambusa metake* and *B. falcata* were the picture of health, so was *Rhododendron Falconeri*, which is usually grown in a greenhouse in this country. There were also some fine specimens of the early flowering varieties of *Rhododendrons*, the majority of which were over, usually flowering here early in February. Healthy specimens of *Azara microphylla* were in bloom, and, being Vanilla scented, they quite perfumed the air for some distance from the trees. *Cunninghamia sinensis*, although growing in a sheltered spot, did not look as if it had benefited by the change from Southern China. It is an interesting curiosity, not often met with owing to its tenderness. *Berberis Darwini* was flowering freely in the surrounding woods, and I noticed one of the largest Hazel trees I have ever met with. At 5 feet from the ground it measures

upwards of 5 feet in circumference, and has a clear trunk of about 7 feet.

About two acres in front of the fruit houses in the kitchen garden are devoted to the cultivation of Alpine and other plants; over a thousand species are grown, and I need hardly say there is always something of interest in bloom. *Anemone fulgens* was a mass of bloom, though just past its best; Daffodils, which are grown by thousands, were nearly over, but the Poet's Narcissus was just bursting into flower. The Pears on the walls were in full bloom, and as they were protected from frosts there is every prospect of obtaining a good crop. Morello and May Duke Cherries were blooming satisfactorily. Cherries, by the way, do remarkably well on the clay land at Belvoir, as the wild form is to be found throughout the woods, some of which are very large specimens, and have a very pleasing effect when in bloom. The fruit trees in the orchards promise well for a heavy crop of fruit, if that all-important factor, the weather, is favourable. Many things have been omitted, but enough has been said to show how much the visit was appreciated by

—ONE OF THE CRAFT.

HABERLEA RHODOPENSIS.

ALTHOUGH by no means a new plant, having been introduced in 1880, *Haberlea rhodopensis* (fig. 92) is seldom seen in gardens. It is dwarf, resembling a *Ramondia* in habit, but with somewhat funnel-shaped flowers, 1 inch long, like a small *Streptocarpus*, the tube purple, and five white lobes. They are borne in trusses of three or four flowers each, arising from amongst the foliage. *Haberlea rhodopensis* is a native of Macedonia, and is closely related to the two genera mentioned above. In Decandolle's "Prodromus" it is placed in the family Cyrtandraceæ, between *Ramondia* and *Conandron*, both monotypic genera, *R. pyrenaica* and *C. ramondioides* being well-known garden plants. This will doubtless meet "Tyro's" requirements.

RED SPIDER ON GOOSEBERRY FOLIAGE.

THE footnote on page 418 reads, "What persons want to know who have to deal with the enemy is the safest and surest method to pursue for its extirpation." My remark above it gives a hint which might, I consider, be carried out wholesale with the least possible expense. A great consideration is the labour bill and insecticides, and their distribution. We know—at any rate I have repeated it often enough—that these pests are on the bushes in February and March, before and during the bursting of the buds. The tips of the buds are then "red with the mites," and look as though every bud infested had been dipped in red ink. They are then at our mercy, without any protection, when feeding on sunny days. At night they retire underneath the scaly matter on the old wood. Young shoots afford no protection, and therefore all useless old stuff should be pruned out and burned.

Some years ago I practically cleared my bushes in a short time with the hot suds from the tubs on washing days, in which I used a little London purple, poured over the bushes through a fine rose watering can. That is well in gardens, but to go over acres requires time, and much of it. Other ways of dealing with these pests suggest themselves to my mind, but if there is a better in the points before mentioned I shall welcome it from anyone.

Knowing by observation, and from the case I mentioned, that the spiders are sensitive to a jar, I have just been round a few bushes where I knew some existed, with the *Journal* in my left hand, and a bread-crumbs brush in my right. I brushed the foliage without damage, and caught the enclosed in a few minutes from falling, and at the same time it shows that a few of the sawfly caterpillars are there. Knowing this, I consider that if we took advantage of this habit of dropping to prevent running up the stems again, we can place either a light frame of wood, or sheet iron, or tin, divided in halves, say, 2 feet wide and 4 feet long, with a half-circular cut in the middle of each to close up with the stems, or nearly so. These traps might be dressed with some of the ordinary tree-dressing grease as used for banding for the winter moths, which could be improved perhaps by the addition of a little boiled linseed oil or turpentine. Thin paint—white for preference, as showing the quantities caught—would no doubt answer as well. The bushes after the apparatus was spread on the ground could be either shaken or brushed, so as to dislodge the enemy, and falling could be destroyed wholesale before laying their eggs very shortly to establish the pests for another season.—J. HIAM, *Astwood Bank*.

EXAMINATION IN HORTICULTURE.—As the result of the recent examination by the Royal Horticultural Society we have been favoured with a list of names of those candidates which have been successful; but as neither their address are given, nor marks appended, the publication of the list could be of small interest to our readers. If our counting is correct eighty-seven have passed in the first class, fifty-five in the second, and twenty-six in the third. "H. S. Langford" heads the list; but whether the premier belongs to the fair sex or is only a "mere man" is not stated. One of the examiners may be expected to make known some particulars in due time.

BATH AND WEST SOUTHERN COUNTIES SHOW AT SOUTHAMPTON.

THE Horticultural Show held as usual in connection with the above was held in one spacious marquee on the Southampton Common—a capital site for such an exhibition. At meetings of this Society no regular prize schedule is issued, but a grant of £100 is allowed for horticulture. This sum is placed in the capable hands of Mr. Herbert W. Fowler, with the result that a pleasing exhibition of flowers and plants is presented to the public. The tent in question measures 100 feet long, 50 feet in width. Down the centre a full row of handsome Palms are arranged, the sides being filled with a choice collection of flowering and foliage plants.

Upon entering the tent a charming group of Carnations Princess of Wales, Germania, and others meet the view, arranged as they are in an undulating manner, reflecting much credit upon the exhibitors, Messrs. W. Cutbush & Son, Highgate Nurseries, Barnet. Mr. B. Lad-



FIG. 92.—HABERLEA RHODOPENSIS.

hams, The Nurseries, Shirley, Southampton, has a charming collection of rockery plants, arranged artistically amongst natural rocks. In addition to this portion of the exhibit, Mr. Ladhams has an immense display of hardy cut flowers and Cannas. Mr. E. Wills, nurseryman, Winchester Road, Southampton, exhibits a neat collection of well grown nursery plants, Orchids, Palms, Crotons, and Spiræas, the whole forming a pleasing exhibit.

Mr. W. Peel, gardener to Miss Todd, Shirley, Southampton, has also a similar exhibit, though of smaller dimensions. At the extreme end of the tent Mr. W. H. Rogers, Red Lodge Nurseries, Southampton, arranged a magnificent collection of Rhododendrons, Azaleas, Conifers in pots, which added much to the beauty and attractiveness of the show. Mr. E. Hillier, nurseryman, Winchester, staged a choice collection of Acers and other shrubs in pots. Messrs. J. Laing & Son, Forest Hill, London, had a small but pleasing group of Begonias, Gloxinias, and Crotons.

Mr. W. J. Godfrey, Exmouth, staged Pelargoniums in pots, freely flowered and well assorted. Messrs. Barr & Sons, King Street, Covent Garden, London, had a pleasing group of cut hardy plants, Iris, Paeonies, and Poppies; Messrs. G. Paul & Son, Cheshunt, cut Rhododendrons and Lilacs; and Messrs. G. Cooling & Sons, Bath, contributed an extensive collection of cut Roses, Briars, &c., making an interesting as well as an attractive display. Messrs. Webb & Sons, Stourbridge, had a large stand in the grounds.—E. MOLYNEUX.

THE YOUNG GARDENERS' DOMAIN.

GOLD PEN-MEN.

WHILE the great majority of young gardeners who have contributed to the page set apart for them as a sort of literary "trial ground" have acquitted themselves creditably, some have naturally distinguished themselves more than others. Every article has been critically examined, and marks of merit accorded for (1) condition of MS, (2) usefulness of matter, (3) good suggestions or ideas, (4) literary merit, while deductions have been made in proportion to the extent of revision required. The result is that "H. H." (who has not given us authority for the publication of his name) and ("C. P. W.") Mr. Peter Wilkinson, Walton Lea Gardens, Warrington, obtained equal marks during the last quarter, and gold pens with fountain holders have been sent to each of them, while a book on a subject in which he is interested has been sent to "W. T., Ireland," who was only five marks below the maximum obtained: It is right to say that those writers have sent contributions that were too lengthy for the "Domain," but entitled to appear in the other columns, and these communications were rightly appraised also. "W. T." is still eligible for the quarterly pen, as are all who have not obtained one. A separate record will be kept of the merits of the contributions of those who have been unsuccessful in case the work of the seniors should be worthy of some other form of recognition in due time. All who wish to write acceptably are enjoined to preserve the number of the *Journal of Horticulture* for December 31st, 1896, and act in accordance with the advice therein contained. Their endeavours to do so will, altogether apart from any special recognition, certainly tend to their advantage in after life. We can scarcely expect young gardeners to be so diligent with their pens in the summer as during the winter, for they are entitled to healthy recreation. The extent of this must be governed by their own judgment. What we desire is that the next generation of gardeners shall be better and more accomplished than the past. The status of the craft can only be raised by the diligence of its younger members.

FORCING FRENCH BEANS.

FOR early work drain the pots fairly well, and as the season advances one crock with rough siftings suffices. We half fill the pots with soil, leaving room for ample top-dressing. Having tried both methods, "Stone Warrilow's" and "W. W.'s," I prefer the former to the latter, and I do not think "W. W." would pick beans two weeks in advance by his method, which entails two pottings and more work with no better results. Unless his chief has more men than work, which is most unlikely, the twice potting is hardly worth extra trouble; but perhaps he is like the squire in preferring something old-fashioned.—SINGLE W.

[Has "Single W." found the plants to emit roots from the stems after the second filling in of soil?]

NATURE'S LARDER.

(Concluded from page 43.)

WATER-LOGGED land is suitable only for aquatic or bog plants. Land not waterlogged, yet moist, or too slow in filtering off excess, is still unfit to grow healthy plants, shrubs, or trees. The water fills each tube and pore in the soil; this evaporates slowly and cools the soil; it hinders the decay of organic matter, also of root action. When the water disappears it generally leaves a surface which bakes and cracks in sunny weather. Water is heaviest at a temperature of 40° Fahr., and therefore the cold water from winter snows and ice retaining its position in the soil, the warm summer rains cannot descend, while solar heat penetrates to no appreciable depth. Now we see that by drainage we allow water, the grand dissolving and mellowing agent, to trickle through the soil, drawing air after it to every passage it has passed.

The mechanism, so to speak, thus set in motion sweetly progresses. Oxides are formed, likewise acids, and by further action the phosphates, nitrates, and carbonates, while the dissolution of organic matter becomes more sure and reliable. The sun's rays heat the surface soil, warm rains fall and carry warmth downwards, obnoxious matters are washed from the soil, and bacterial with other agencies encouraged.

The burning of soils has been referred to by Mr. Dyke. Speaking of bacteria, we may state their action ceases in cold wet soils. Nitrification, or the work of bacteria, is briskest in a soil where the temperature is 90° Fahr., though from 40° up to 120° the process has been proved. Sufficiency of moisture is retained during dry weather in drained lands, water rising from below by capillary attraction. Capillary attraction is the power which very minute tubes possess of causing a liquid to rise in them above its level, sometimes as much as 12 or 15 inches. To promote these fertilising agents lime and an alkaline condition of soil is regarded as necessary.

Lime to most soils is highly beneficial. To improve heavy soils or those with an excess of organic constituents, we apply lime. It neutralises the acids which tend to sour a soil. It liberates the potash and soda from heavy land, also it frees nitrogen from organic substances, this forming ammonia and nitric acid. With this acid lime combines to form calcium nitrate. Lime then is valuable. By the bacterial agents aforementioned, matter for ready absorption is prepared.

The fertility of soils depends on three conditions: 1, The physical condition—viz., lightness or stiffness; evaporative power; water-retaining power; capacity for heat; colour. 2, Its chemical condition; referring to its constituents and quantities of soluble or insoluble matter. 3, The biological condition. We have oxidising bacteria, those of a reverse nature, called reducing bacteria, bacteria which tend to retain nitrogen in soils.

Besides these, worms, grubs of all kinds and various larva all tend to aid in the pulverisation. How delightful to have even the rudiments of agricultural chemistry, and how profitable in our culture. Armed with a few scientific facts we need only to concentrate our reasoning powers in cases of perplexity, coupling these facts with those gained by careful observation in practice, we must surely triumph over the principles relating to the "food stores," or "Nature's larder."—A YOUNG SCOT.

IXORAS.

THESE plants are worth more attention than they generally receive. They are effective when well grown, either as small or large plants. They may be increased by cuttings, which I find root best in the autumn where the heat is limited, although they will root at any time of the year if sufficient heat is available. They are best inserted singly in small pots, filled with fine peat and coarse sand. If large plants are required ample root room must be afforded, but good decorative plants are grown in 6-inch pots of the smaller flowered varieties. The varieties with large trusses of blooms, of which Duffii Williamsi are a type, make the best specimens. Ixoras require brisk heat and copious moisture during the growing season, always shading from bright sun. A good compost to grow them in consists of two parts peat, one of loam, with charcoal and coarse sand added, top-dressing at intervals with some well-approved artificial manure. The plants should be kept well up to the glass when starting into growth, so as to obtain an even break. If one or two of the shoots are growing stronger than the others take out the point, otherwise one part of the plant will be in flower before the other.

To grow Ixoras well they must be kept clean and free from insect pests. A thorough cleaning should be given before they start into growth, as the young shoots and leaves are very tender and liable to get injured. They should be carefully gone over frequently, killing all insects that can be seen by touching with a drop of methylated spirit. Mealy bug and scale are the greatest enemies of Ixoras. A start should be made with clean young plants if possible, as the bark of the old wood greatly harbours insect pests. When the plants are in flower they should be removed to a drier and cooler house, in which they retain their beauty for a considerable time.—J. L. G.

ZONAL PELARGONIUMS.

Now is the time to insert cuttings of Zonal Pelargoniums that are to flower next winter, if not already done. March and April are the best months. It is best to insert the cuttings singly in 3-inch pots at this rather late period, subsequently shifting the plants into 5 and 6-inch pots when rooted, afterwards repotting the best into 7-inch pots if large plants are required.

For rooting the cuttings use a compost of equal parts of loam, leaf mould, and sand. For the flowering pots use three-fourths loam and one-fourth of leaf mould and horse droppings, with an 8-inch potful of bonemeal to each barrowload of soil. Stand the plants in an open sunny position outside during July and August, and if September is fine till the middle of that month. Pinch off the flower buds that show till the end of August. Use liquid manure sparingly till the flower trusses advance for opening, when it may be given freely when needed.

Some of the best though old varieties for flowering in winter time are—Singles: Charles Dickens, D. B. Crane, General Dodds, Miller's Favourite, Brilliantissima, Lord Salisbury, very dark; and Wm. Dobbs, scarlet; Agnes, Sir Percival, Swanley Single White, and Edith Syrratt white; Mrs. Robt. Cannell, Beauty of Kent, Mrs. Norman, Lady Rosebery, and Mrs. H. A. Needs, salmon; Mrs. G. Slatter and Mrs. Wildsmith, pink; Mrs. W. Wright, a deep magenta, supposed to be the nearest approach to blue in the family.

In the doubles we have useful plants either for cut flowers, as the flowers last so well, or for making the greenhouse gay over a long period. I do not know any better varieties for winter blooming than A. D. Raspail and Raspail Improved, Golden Rain, Turtle's Surprise, M. Briant, and Mr. W. E. Gladstone, scarlet; H. M. Stanley, Lord Derby, and Mrs. Dixon, pink; Swanley Double White, White Abney, and La Sygne, white; Maggie Hallock, Lord Tennyson, and Beauté Poitevin, salmon; Miller's Gem, magenta, and Madame L. Dalloy, blush.

A mistake is often made keeping the plants in too low a temperature during the winter. Do not let the thermometer fall below 55° with a dry buoyant air, and you will have flowers in abundance even in the dark days about Christmas.—W. T., Ireland.

A FEW STOVE CLIMBERS AND THEIR CULTURE.

WE young gardeners ought to be a little ashamed of ourselves if we do not take advantage of the opportunity such as is now provided for expressing our ideas, and helping one another by giving our experiences through the medium of the Journal. Hence have I been drawn out of my shell, and I hope if anyone thinks I am wrong he will correct me as far as it lies in his power to do so. To undertake an article on the whole class of stove climbers would be rather large under-

taking, in fact it would be too large for most "youngsters," that is why I have said a "few" stove climbers.

I think *Stephanotis floribunda* should have the preference, for what can compare with the pure wax-like flowers and sweet perfume of this valuable plant? The compost we use for growing it consists of two parts fibrous loam, one part peat, half part leaf soil, with a sprinkling of silver sand and charcoal added. When the plants are fairly established in this compost we feed continually to encourage sturdy growth, which flowers freely; the plants then only require keeping free from mealy bug and other insect pests to be fully appreciated. For syringing we use petroleum to the extent of one wineglass (about 1½ oz.) to a gallon of water, keeping thoroughly mixed with the syringe whilst using. By two or three syringings weekly not an insect is seen, while the plant is in no way injured. The growths as they extend must be tied down at least once a week, or the plant will become a perfect thicket, the growth is so rapid. This constant tying down facilitates pruning later in the season, as by keeping the growths free, and preventing entangling all the wood that is not required after flowering can be easily cut out, leaving just enough under the direct action of light to furnish the plant for another season.

Next to the *Stephanotis* comes *Gloriosa superba*, or at least it does in my estimation. The compost we use for this is as follows:—Three parts peat, one part good fibrous loam, half part dried cow manure, and half part coarse silver sand. We find that the end of April is soon enough to start the tubers, which is done by placing the pots in the propagating case until the growths are about 1 foot long. The plants are then removed to the stove, summer training the growths as they extend along the roof. Red spider and thrips are the chief enemies to guard against. It will not be a very difficult matter to keep down these if the syringe is kept going pretty freely. When the leaves change in the autumn water is withheld until another season.

Third on the list comes *Allamanda*. The compost for this consists chiefly of rich loam with a little dried cow manure passed through a coarse riddle. If the loam is not fibrous a small portion (about a fourth part) of peat may be added. A great mistake is made by some growers who are anxious to make fine specimens by tying down the growths too soon. By allowing them to remain as they grow, as they are kept just clear of the glass, they show flower buds much sooner than when tied down tightly, the tying down seeming to encourage growth rather than flowers. When the plant has commenced flowering in earnest a top-dressing of some good artificial manure is very beneficial.

To keep the flowers fresh in a cut state they should have about a tablespoonful of water placed inside them, and be also stood in water. In this way they may be kept for several days. Of course this is not necessary where a good plant flowers so freely that quantities may be cut every day. As November advances dry off for about ten weeks, which is quite sufficient rest. Prune rather hard, and start again about the middle of January.

Dipladenias next demand mention. There are some real gems in this class, notably those mentioned by Mr. Lock in the *Journal* of April 22nd, and young gardeners cannot do better than follow his cultural directions. The only exception I take to Mr. L.'s *modus operandi* is that he spends unnecessary time in sponging. I think if he adopted the practice described in the case of the *Stephanotis* he would save much time, and find the result equally satisfactory.

Although we cannot, strictly speaking, class *Asparagus plumosus* as a climber, yet it comes in very useful for covering pillars of any height up to 10 feet, so I will give a few hints as to how we grow it. If a new stock is required and an old plant is not obtainable, plants can be raised from seeds, but these being extremely hard it is well to soak them for a day or two before sowing, as by doing so they germinate the more freely. Sow the seeds in pots in a compost of peat, leaf soil, and sand in equal parts, placing them in a temperature of 80° or 85°.

If an old plant is obtainable a better start can be made by division, cutting the plant up with a sharp knife, being sure to have roots to each portion, which place in pots of suitable size, putting them in the propagating case until growth starts freely. A suitable compost is formed by three parts of good peat, one part of old Mushroom bed refuse, and one part of sand. The plants require syringing occasionally to keep down scale, which is the most troublesome enemy, and is rather a difficult one to get rid of without damaging the fine leaves, when once it is there. Many more very valuable stove climbers could be mentioned, but these are a few of the favourites of—GARCON.

RANUNCULUS GRANDIFOLIUS.—Of the many species of *Ranunculus*, this, from the Canary Islands, is one of the most handsome. Although not perfectly hardy, it can be grown outside during the summer, wintered in a cold frame, and flowered in a cool house in April and May. Possibly if tried in the south-west counties of England or Ireland, it would be found to stand uninjured outside through the winter. The leaves are of immense size, the radical ones often being more than 1 foot across. They are almost reniform in shape, with deeply lobed and serrated margins, both surfaces being covered with fine soft hairs. The largest of the stem leaves are about 9 inches across, and like the others in shape. The flowers are produced on branching stems 2½ to 3 feet in height, fifty to seventy flowers being produced on one stem. The individual blossoms are 2 inches across, and similar to our wild Buttercup in colour. At Kew several plants may be seen in flower in pots in the greenhouse, and others established in a border in the Winter Garden.—K.



FRUIT FORCING.

Cherry House.—There is nothing in the fruit way so charming at this time of year as a house of Cherries, whether the trees are planted out and trained to trellises, or grown in pots as standards. No greater mistake is made than having a number of varieties for affording a general supply, and a long succession of fruit can be had by forcing such as Early Rivers, Governor Wood, and Black Tartarian. When the whole of the crop is ripe the chief consideration will be to keep the fruit fresh, and prolong the season as long as possible. Shading will do so, but it is only advisable when the Cherries are directly exposed to the sun, owing to the limited foliage. Free ventilation must be attended to, and in hot weather a sprinkling of water on the surface of the border, as well as the paths, in the hottest part of the day, will assist in keeping the fruit plump. The supply of water must not be neglected, for dryness at the roots is inimical to the formation of the buds for the ensuing crop of fruit and health of the trees.

Cucumbers.—In these days of express culture, and their frequent breakdowns, it may appear retrograde to advise the renovation of plants that have been in bearing since the beginning of the year. If the old plants have not been cropped within an inch of their lives (which is always the rate of progress under the go-as-fast-as-possible break-neck system) and are fairly healthy, they may be kept in satisfactory bearing a time longer by removing some of the soil with a fork, and supplying in its place lumpy loam, afterwards surfacing with decayed manure, and, after sprinkling on it half a pound per square yard of a mixture of air-slaked best chalk lime and dry soot in equal parts by measure, giving a good soaking of tepid water. This will afford such amounts of the essential elements and minor constituents of Cucumbers, to which the plants are little accustomed in these go-a-head times, that they will recover from the lethargy of overbearing, and make growths bearing fruit abundantly. Then it is only a question of feeding—the supplying of phosphoric and potassic elements, with nitrogenic, to insure their utilisation.

If the plants are on their last legs, devoured by red spider, cankered in the stem, and altogether "out of sorts," then by all means clear them out of the way, cleanse the house, take out the old soil, place in fresh and sound, and plant as soon as possible with young healthy plants just coming into bearing in order to save time.

In the matter of plants of this year's raising it will be necessary to thin out the old growths and encourage young in their place. Shade from powerful sun, syringe both ways in the morning and early afternoon, damping well down before nightfall. Admit a little air at 75°, increasing with the advancing sun, keeping at 85° to 90° through the day with sun, and close early so as to secure a temperature of 90°, 95°, or even 100° well on in the afternoon. Fire heat need only be employed to prevent the night temperature falling below 60° to 65°, and to insure 70° to 75° by day.

Pits and Frames.—Cucumbers in these should be ventilated from 7.30 to 8 A.M., just a little to allow the pent-up moisture to escape and the atmosphere to warm gradually with the advancing sun. In the hottest part of the day a slight shade from fierce sun will be beneficial, and keeping through the day at 85° to 90°, close so as to increase 5° to 10° with sun heat. Keep the plants watered as required, about twice a week will be necessary in bright weather, and damp overhead on fine afternoons. Avoid overcrowding the foliage, thinning well, keeping up a succession of bearing wood, removing bad leaves, stopping one or two joints beyond the show of fruit, and avoid overcropping. If straight fruits are wanted place them in glasses or pieces of quarter-inch deal, nailed together so as to form open-ended troughs about 3 inches wide, which must be slightly inclined so as not to hold water.

Figs.—*Early Forced Planted-out Trees.*—The fruits on these are now ripening, and must be kept from wet, as this not only causes them to crack, but ruins the quality, and often induces their spotting at the apex, a salmon coloured spot forming in consequence of attack by the spot fungus, *Gaeosporium laticolor*. The best preventive of this is a little air constantly so that moisture does not condense on the fruit during the night, and the ventilation being increased early in the day there will not be any accumulated moisture such as is essential for the germination of the fungus spores. A temperature of 60° to 65° at night, and 70° to 75° by day, artificially, will be sufficient, advancing to 85° or 90° from sun heat. Afford moderate air moisture by damping the paths and borders when they become dry, and supply water to the roots so as to keep the foliage in health.

Melons.—Plants ripening their fruit should have water withheld from it, and only sufficient given at the roots to keep the foliage fresh. A little air constantly, gentle warmth in the hot-water pipes, and rather free ventilation, increased from the early part of the day, is the best safeguard against the fruit cracking. If there be any danger of this cut the Vine about half-way through a short distance below the fruit, but the chief thing is to keep the atmosphere airing, and thus cause evaporation

from instead of the condensation of moisture upon it. Plants in flower also must have a little air constantly, with a free circulation on fine days, fertilising the flowers as they become fully expanded, and when a sufficient number of fruits about equal size are set upon a plant remove all others and flowers, both staminate and pistillate. Three or four fruits on plants of ordinary size and vigour are as many as each can bring to full size and highest perfection, overcropping being alike fatal to appearance and utility, the fruit very often not reaching maturity, but ripens prematurely, and these are comparatively worthless. Plants swelling their fruits should have liberal supplies of tepid liquid manure or light top-dressings of fertiliser worked in moderately, with additions made to the ridges or hillocks of fresh soil as the roots protrude, and it should be warm. Go over the plants frequently for the removal or stopping of laterals, keeping the principal foliage well exposed to light, and above all things perfectly free from pests.

Young plants in frames or pits with the shoots trained over the surface must be thinned to four, two being taken to the front and two to the back, keeping the laterals rubbed off to quite 6 inches from the stem, and pinching the main shoots when 12 to 15 inches from the sides of the pits or frames. The laterals will show fruit at the first or second joint, and the flowers being fully expanded fertilise them about noon on a fine day, leaving a little air on constantly to prevent the condensation of moisture, a moist close atmosphere being fatal to a good set. Pinch out the points of the shoots one joint above the fruit, and after three or four fruits are set and swelling on a plant remove all others. Keep the laterals closely pinched, and thin them if likely to crowd the principal foliage. Afford due but not excessive supplies of water, and if liquid manure be given, let it be weak and warm, keeping it from the foliage. Sprinkle the plants in the afternoon of fine days with clear soft water, closing about 3.30 P.M. to 4 P.M., or so early as to raise the temperature to 90°, 95°, or 100°, and ventilate early in the day, or from 7.30 A.M. to 8 A.M., keeping through the day at 80° to 90°, and reduce the ventilation gradually. Keep a sharp look out for aphides, and fumigate on two or three consecutive evenings moderately, an overdose doing great injury. Shade the following day if the weather be bright, and always have the foliage dry when fumigating. Red spider will not appear if the plants are kept properly moist, but if it does so place a little flowers of sulphur on a slate raised on an inverted flower pot so that the sun can act upon it. If canker appear on the stem rub quicklime into the affected parts until they are dry, and repeat as occasion requires, being careful to keep water from the collar.

THE KITCHEN GARDEN.

Tomatoes.—Bright sunshine accompanied by parching winds, though favourable to the ripening of fruit, is not altogether to the advantage of Tomato growers. The fruit on plants under glass does not set so well on the later formed bunches as it does when the weather is less trying, especially where the ventilation and other treatment have not been varied to meet the requirements of the case. Top ventilators should be opened a few inches not later than 6 A.M., gradually opening them wider till at ten o'clock, when ample provision has been made. Defer ventilating till the temperature has run up to 70° or more, and the chances are nothing short of opening both top and side ventilators to their full extent will lower the heat sufficiently. By opening early it is scarcely necessary to admit any front or side air, or even to set the top ventilators open to their full extent before June. Early ventilation also favours exemption from disease. A portion of the air may be taken off at 5 P.M., but the houses must not be wholly closed early enough to create a heated, moisture-laden atmosphere, as the cladisporium revels in this. All watering of borders should be done as much as possible in the morning, and, if not already done, mulched with strawy manure, this saving the watering pot or hose and keeping the atmosphere drier. After the plants have become furnished with two or more clusters of fruit they must be fed freely at the roots, also receiving abundance of water, otherwise they will fail to set and swell successional clusters of fruit. All ought to be gone over at least once a week, removing all superfluous growths, training the leaders, and slightly reducing the size of the leaves where these shade the fruit unduly. Setting of fruit should not be left to chance or artificial distribution of pollen, accomplished by smartly tapping the stems with a padded stick, be deferred till late in the day. About ten o'clock is a good time to commence, or before the moisture on the stigma of each flower has disappeared.

Tomatoes in Pots.—These are among the first to suffer from the effects of drying winds and strong sunshine. If the pots are arranged on stagings, benches, or boards, and are further exposed to sunshine, they become very hot and the soil dries rapidly. They are liable to fail, even if watered three or four times a day. Covering the pots with mats, paper, or strawy litter keeps them somewhat cooler, but they will still need abundance of water and liquid manure. Top-dressings of rich manure and loam are of good service, but not if they are taken much notice of when examined before watering, as its appearance may be deceptive. The plants ought to receive nearly or quite as much water after a top-dressing has been applied as they did before it was given. Pots ought, where possible, to be arranged either on a bed of soil or ashes, and the roots allowed to ramble out through the drainage holes into this. Ashes answer admirably if kept constantly moist, an occasional surfacing of special manure adding materially to the cropping capabilities of the plants. Topping weakly plants beyond the third or fourth bunch of flowers favours rapid swelling and early ripening of crops, and if there is sufficient head room a fresh leader can be laid in from the next break.

Potatoes.—Where badly damaged by frost before they had been moulded up once recovery has been slow, and in some instances the wisest plan would have been to plant afresh. Potatoes planted late are growing strongly, and with a change to moister weather with warm nights rapid progress will be made. Whilst the dry hot weather lasts hoeing deeply among them would in many instances do more harm than good. Deep hoeing is also unwise after the fibrous roots are in full possession of the spaces between the rows. Advantage ought to be taken of a change to showery weather to sow either soot freely or special manures lightly among the rows, then hoeing and soon after moulding up the plants.

Planting Between Potatoes.—Where the rows of short-topped early Potatoes are not less than 3 feet apart, good sites for rows of Borecole, autumn Broccoli, and Cauliflower and Brussels Sprouts are ready directly after the Potatoes have had the soil ridged up to them. In anticipation of this the requisite number of plants should have been raised under glass and duly pricked out on sheltered borders. From these they ought to be transplanted with a trowel, saving a small ball of soil about the roots. They will move best if well moistened at the roots a few hours prior to lifting, and should be firmly replanted with the trowel at distances of 2 feet or rather more apart. If this is done in dry weather they must be watered frequently, ceasing when they are growing strongly.

Peas.—Only the more robust varieties, of the Ne Plus Ultra and British Queen types, should be sown now. The more feeble sorts late sown succumb quickly to mildew. Sow thinly in freely manured, deeply dug ground. A mulching of strawy manure ought where possible to be applied to all the midseason and late rows of Peas, and would not be wasted on the earlier rows. If water or liquid manure is given let it be in sufficiently heavy quantities to thoroughly moisten the ground.

Spinach.—This fails quickly in hot and dry weather, but if required in August the next two or three sowings should be made at fortnightly intervals on a well manured north border. The soil should be got into a finely divided state, and when the shallow drills, opened at 12 inches apart, are found dry, moisten prior to sowing the seed. Avoid sowing thickly. The large-leaved Victoria or Monstrous Viroflay is to be preferred for these sowings.

New Zealand Spinach.—This is but a poor substitute for true Spinach, but proves acceptable in some establishments. Its cultural requirements are of the simplest character. A dozen plants raised under glass, and transplanted to a south border or a sunny open spot, will yield bushels of succulent tops. Plant a yard apart each way, and give water occasionally till the roots have spread out into the surrounding soil.

Turnips.—These also are liable to fail during a hot summer, but are less likely to do so if the seed is sown on a cool rich border—a moderately wide north border answering well.

STERNBERGIA FISCHERIANA.—This is a spring-flowering species of the well-known Winter Daffodil, and as it now appears in the border is a noticeable flower, even though it comes in Narcissus time, when yellow flowers are becoming plentiful. Sternbergia Fischeriana differs from the autumn-flowering *S. lutea* in having much broader leaves, smaller flowers of the same rich yellow colour. The peduncles are short, and the flowers are borne above the leaves, which as yet are only slightly developed in height. The plant flowers freely, each bulb producing several blooms. The Sternbergias are all valuable bulbous plants in any garden and are perfectly hardy, even the leaves of *S. lutea*, which are in evidence all the winter and only ripen at this season, being unaffected by the rigours. That they are not more grown is probably owing to their need of a special position in the border, which they do not always find. As *S. lutea* now ripens it requires a position where it will be fairly dry, and a warm place where it will be well roasted in summer. In such a position, in rather heavy soil, it has, says a writer in an American contemporary, never disappointed me, and it starts in due time in the late fall and blossoms profusely, and even multiplies. The large-flowered *S. macrantha*, which follows this species in flower, evidently requires the same kind of location, for several clumps planted in other conditions here have as yet failed to do much in the way of flowering, though the leaves are now prominent enough.

THE BEE-KEEPER.

SEASONABLE NOTES.

THE past winter and spring will be long remembered by bee-keepers as being very disastrous to the bees, not as is sometimes the case when only certain localities suffered, but throughout the country reports are daily to hand as to the backwardness of stocks when compared with other seasons. A gardener in one of the largest places in the West of England, where fruit is extensively grown, and who devotes much attention to his bees, says, "At the present moment the honey harvest for this year is gloomy; but let us hope—that is all we can do. Owing to the high winds and cold

weather many bees left their hives at various times and never returned; hundreds were observed lying benumbed on the walks, beaten down by the wind whilst returning home laden with pollen, and all around this neighbourhood bee-keepers have the same story to tell. Hives that appeared to be strong in bees six weeks ago have dwindled, and are now weaker than at that time."

Reports from the midland and northern districts confirm the above; but I do not agree with the writer that "to hope is all we can do," as it is at such times when the attentive bee-keeper is able to assist his bees. As a proof I may mention what has been done in my own apiary during the inclement weather experienced this spring. Bees were fed daily with thin syrup placed in open-air feeders near the hives; this proved an advantage, and was the means of keeping them near home.

When a favourable change came in the weather, which it did on the 15th inst. and two following days, it was fine and bright, the maximum temperature being 69° in the shade, the bees worked with a will as if intending to make up for loss of time. Entrances had to be opened their full width, and colonies that had not been opened for several weeks, and from which few bees had been observed on the wing, were now found to be overflowing with bees, showing that the few stones of sugar that had been distributed throughout the apiary had had the desired effect of keeping the queens laying, which will in due course be, doubtless, returned a hundredfold.

Contrast this with the let-alone system, and it must be apparent to the most casual observer that the thoughtful bee-keeper will be well repaid for the extra trouble and expense he devotes to his bees. The Apple trees are now in full bloom, and so are the Sycamores. From these sources alone honey and pollen are being obtained in abundance. The Strawberries, too, will soon be a mass of bloom, from which the bees will derive much benefit. If the fine weather continue strong colonies will at once store a surplus, but weak stocks will only store sufficient for their daily requirements.

WORKING FOR COMB HONEY.

Except in favoured districts, or where bees have received careful attention, few stocks will be in condition for supering. It is useless placing crates of sections in a hive unless the brood nest is crowded with bees. This is the reason why bee-keepers often have a difficulty in getting their bees to work in supers. If a stock is fairly strong in bees during a spell of fine weather, when the fruit trees are in bloom, it is possible to obtain some well finished early sections from that source. This is done by contracting the brood nest. First remove all the outside combs that do not contain brood and close up the division board. Care must be taken that the bees cannot gain access to the empty space, or they will fill it with combs.

I recently had a practical illustration of this. In looking through a hive from which some frames had been removed, and the space not filled with other frames, although it had only been done a few days previously, the empty space was being rapidly filled with comb, which had to be destroyed. Had no empty space been left in the brood nest all would have been well, and much valuable time to the bees have been saved. In placing a crate of sections on the top of the frames, which should always be put directly over the brood nest, the crate fitting closely on the top bar of frames, excluder zinc need not be used, as the queen will not pass over the sealed-up stores at the top of the combs to lay eggs in the sections above. Cover the whole up with several thicknesses of old carpet, or some warm material, as it is necessary to keep the whole as warm as it is possible, otherwise the bees will not work in supers.

This plan of obtaining early sections is only recommended in exceptional cases. Stocks worked on this plan should have additional frames of comb or foundation given to them as required, otherwise the laying powers of the queen will be restricted, and the colony will thus be short of workers when the honey flow comes.

If honey cannot be obtained freely from other sources, after the fruit tree blossom is over till the White Clover comes in, it will be an advantage to remove the crate of sections altogether, and fill the body of the hive with frames, the sections to be afterwards returned to the hive as soon as honey is again coming in freely. Early sections may also be obtained by placing a frame of sections at the back of brood nest with a piece of excluder zinc between to prevent the queen laying in them.—AN ENGLISH BEE-KEEPER.

TRADE CATALOGUE RECEIVED.

F. Sander & Co., St. Albans.—*New Orchids—New Plants.*



* All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," 8, Rose Hill Road, Wandsworth, London, S.W. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

Grapes Scalded (H., Kent).—The specimens arrived on Wednesday morning. We can only say the misfortune is the result of too late (and too full at once) ventilation on a bright morning after one of the cold nights we have had, and consequently too low temperature for the Grapes. The other varieties have had a narrow escape.

Swollen Pears (C. W.).—If you examine the fruits inside you will find maggots, the larvæ of the Pear midge referred to in a note by Mr. Hiam on page 463, and about which Mr. Abbey will perhaps favour with some further particulars. In the meantime follow Mr. Hiam's advice, and burn all the abnormal Pears.

Cabbage and Cauliflower Leaves Diseased (T. G.).—There were no less than three parasitic fungi on the leaves—namely, the Cabbage rot fungus, *Peronospora parasitica*; the scurvy grass (*Cochlearia officinalis*) rot fungus, *Ovularia cochleariae*, Mass.; and the Turnip rot fungus, *Botrytis vulgaris*. No dressings of sulphate of copper can well be applied to vegetables nearly ready for use, otherwise we found dusting with it very effective on Seakale and Horseradish, the latter often leaving the leaves ruined by the allied species of spot fungus, *Ovularia armoraciae*, Mass. In the case of Cabbage we found the following treatment act well. (1) Burn all affected leaves and stumps. (2) Apply to the land a dressing of the following mixture:—Dissolved raw bones, 3 cwt.; bonemeal, 1 cwt.; mixed, per acre, or 2½ lb. per rod. Before planting, and as soon as the plants get hold of the soil, apply the following mixture:—Nitrate of soda, 2 cwt.; common salt, 3 cwt.; mixed, per acre, or 3½ lb. per rod, keeping from the hearts of the plants. A further dressing of nitrate of soda early in the spring acted like magic, and repaid its cost thrice over.

Young Defective Bunches of Grapes (Peccavi).—The grey mould on the affected parts is the Vine mould, *Sclerotinia Fuckeliana*, in the conidial condition, and then known as *Botrytis cinerea*. It is the most decisive case of shanking being caused by the fungus that has come to our notice, the hyphæ being both outside and within the tissues of the tender bunch stem and lateral stems of the bunch, these being completely girdled by the mycelial hyphæ. The fungus is very partial to Muscat of Alexandria and Gros Colman, also ripening bunches of Alicante. The parasite has, no doubt, passed the winter on the Vines in the sclerotium stage, the externally black sclerotia being seated on the wood, where they may be destroyed or the recurrence of the disease prevented by dressing the rods in the winter with a solution of sulphate of iron, 1 lb. to 1½ gallon of water, applying with a half-worn clean painter's sash brush. The Vines may also be sprayed when they come into leaf with a solution of Condry's fluid, using a tablespoonful to a quart of water, and applying by means of an atomiser, the smallest possible film sufficing, repeating at intervals of about three weeks. It is not unusual for Muscat of Alexandria to be affected, whilst Mrs. Pince in the same house is perfectly free. Probably that condition favourable to attacks of the fungus has been induced by too much water at the roots, or too rich supplies of nourishment in the early stages of growth, with too close and moist an atmosphere, the house having been kept closer than would have been the case had the weather been less windy and cold than it has been of late. We should apply some good commercial fertiliser and get the wood more firm; then we do not consider you have anything to fear in the future, providing the border is sound and properly drained, other conditions, of course, being favourable to the health of the Vines, for on that depends their resistance of the fungus.

"New" Method of Grafting (M. S.).—We are not surprised by your exclamation, "What! again the old saddle-graft brought forward as a new method, and this by the R.H.S.!" (page 430). The scientific gentlemen composing the Committee could not be expected to be conversant with all old practical matters, but it is a little astonishing that Mr. Douglas regarded the method as something like a "new" improvement. It is a modification of the very old saddle-grafting, and we found it excellent many years ago. We congratulate you on saving your Strawberry blooms by netting to "break" the frost.

Propagating Boronias (H. H. B. W.).—You are not alone in your liking for the deliciously fragrant Boronias. When the young shoots are about half ripened is the time to make and insert cuttings. The pots for their reception must be well drained and firmly filled with fine peaty soil, heavily surfaced with sharp sand. Trim the cuttings with a keen knife, inserting firmly 2 inches apart, and give a gentle watering at once. Place in an intermediate temperature or warm greenhouse, and closely cover with a bell-glass. Shade from bright sunshine, and thoroughly dry the glass every morning. They will root and commence to grow in a few weeks, when they should be topped, and after breaking afresh be potted into thumb pots, using a compost of two parts of fibrous peat to one of light loam, charcoal and silver sand being freely added. Apply water carefully, pinch back repeatedly, and bushy little plants will result.

Vagaries in Laburnums (H. C.).—We have seen several trees similar to yours, though they are not common in gardens. It is known as *Cytisus Adami*, and is a graft hybrid between *C. Laburnum* and *C. purpureus*, obtained by Mr. Jean Louis Adam in 1825 in establishing the purple species on the common Laburnum. In this process it is supposed that a cell of the one species became divided and united to a cell of the other, and the result has been a plant producing not only flowers of each species separately, but others partaking of the characters of both. There are other instances in the vegetable kingdom in which a similar union of cells is believed to have taken place, but *Cytisus Adami* is the best known and best established. It is remarkable that grafting or budding with one variety will occasionally, as the tree grows, produce three or four forms differing in colour and the character of the leaves and racemes. We have not only seen purple and yellow flowers on the same tree but about half and half in the same raceme. There is no accounting for the vagaries of Laburnums when grafting has been resorted to.

Strawberry Leaves Diseased (T. G.).—The leaves are badly infested with the Strawberry leaf-blight fungus, *Sphaerella fragariae* which first appears on the upper surface of the leaves in the shape of small reddish purple spots, these increasing rapidly in size. The centres gradually become lighter, afterwards turn brown, but the margin or boundary remains purplish red. The spots vary in size, from a quarter inch, but sometimes run together, forming large discoloured blotches. Badly infested leaves finally wither, turn brown, and die. The spores of the fungus must be killed in the act of germinating, and the way to do it is to coat the leaf surface with a thin film of sulphate of copper preparation in powder, such as fostite and anti-blight, applying with a bellows apparatus two or more times during summer, say when the crop is gathered, just after the old runners and bad leaves are cut off, so as to coat the young leaves, repeating when necessary. This has a very decided effect on the fungus. Then in the spring, when the new leaves start, whether under glass or outdoors, dust the plants, and again just before the flowers open. We have found this treatment troublesome, but very satisfactory both against this fungus and mildew, *Oidium balsami*. It should be needless to say that old infested leaves should be removed and burnt so as to destroy the resting receptacles of the parasite, which is becoming very common in England, probably being introduced from America, as it does not occur on the wild Strawberry.

Destroying Ants (J. F. W.).—The black ants with wings are the male and female representatives, and only appear once a year, the females divesting themselves of the wings after mating while the males die. Thus all are wingless at other times, but form three classes—(1) workers, (2) soldiers, and (3) queen. Now, to get at the latter is the real business in the way of extirpation, for killing the workers only lessens—does not root out the evil. Thus the point is to give the workers something they can take home, and there transfer it to the larvae, in feeding them, so that the whole may get "smaller by degrees and beautifully less." The safest preparation is calomel and sugar, one part of the first to ten parts of finely powdered loaf sugar, mixed together and laid in small heaps about their nests and runs. The ants eat it and die, but it is most efficacious in the spring. The following never fails, but it is a very dangerous poison. Place 1 oz. of white arsenic in an old iron pot with a quart of water, and boil until reduced to a pint or a little more of liquid, then add $\frac{1}{2}$ lb. of coarse sugar. This mixture can be placed in saucers or dropped about their runs, exercising the utmost caution. If you do not care to prepare such mixture, Ballikinrain ant destroyer will do the work effectually. Carbolic acid, No. 5, diluted with twelve times its bulk of water, sprinkled over places where there is not any vegetation, will drive the ants away, but its smell prevents its use indoors. Not so camphor, a piece about the size of a Filbert placed in 2 quarts of hot water, and when cool enough applied by means of an atomiser will kill all it touches. So also will aniline, one part in twenty parts water, using in a similar manner. This has practically no smell, and stains very little. Fir tree oil is also effective, but scarcely available for use indoors.

Treatment of Camellias (Liverpoolian).—Certainly, if the Camellias are making a good growth they may be shifted into larger pots now or just after the buds set, and whilst quite small; but if not growing freely leave them as they are for another year, unless they are very much root-bound, when they may be potted. Camellias and all hardwooded plants are always best when rather under than over-potted. A size larger pot is all that should be given at one time, and Camellias do not require this oftener than once in every second or third year. Turfy loam and fibrous peat in equal parts, with a little leaf soil or old cow manure, and a free admixture of sand, providing efficient drainage, grow these plants well. The more fibrous the loam and peat, both of which should be light rather than heavy or spongy, the better.

Propagating Aubrietias (Amateur).—You will find it a very simple matter to raise any number of these charming spring-flowering plants. Thousands, possibly millions, have been raised from seeds, and this is certainly the easiest way; and although all the resulting plants are not precisely alike in the size of the flowers and in the habit of growth, the diversity is not so great as to be any serious obstacle to the plants being used in lines or masses; while when grown in isolated places in borders and on rockeries the variations are acceptable rather than otherwise. The plants cannot be raised too early now. Sow the seed in boxes, cover with a square of glass, place in heat, and keep the soil constantly moist. When the seedlings are large enough transplant them 6 inches apart in rows 1 foot asunder in good soil, and a sheltered position; and with care in watering as needed, stirring the soil frequently, good plants will be had in October for placing where they are to flower.

Tuberose Culture (Old Subscriber).—You ask for "a simple system" of growing these fragrant flowers. The following will probably be of assistance to you. The bulbs may be flowered either singly in a 5-inch pot, or three can be placed in a 6-inch. A compost consisting of three parts fibrous loam to one each of good leaf soil and decayed manure passed through a coarse riddle, with a little coarse sand, suits them well. Pot rather firmly, the bulbs being about three parts buried, but if the soil is moderately moist do not give any water. Set the pots in a frame and heavily cover with cocoa-nut fibre refuse, or if a frame cannot be spared put them under a greenhouse stage where little or no drip will reach them, and cover thickly as previously advised. When rooting freely and top growth has commenced they must be at once uncovered and gradually exposed to the full light. Early started bulbs will flower in an ordinary greenhouse during the summer, and even in the open air, but later they will require to be gently forced. The flower stems ought to be kept well secured to stakes, and liquid manure may be freely given after the pots are well filled with roots. A few may fail to throw up flower stems, but the majority will give one good spike, after which they are of no further value, and should be thrown away. Red spider is the worst enemy with which Tuberoles have to contend, but this can easily be kept down with the syringe, and a puff of tobacco powder followed by the syringe will prove efficacious against green and black fly.

Diseased Peaches (H. W.).—The fruit has arrived at the stage immediately preceding stoning, when it is liable to the "second dropping," for there are four periods at which the Peach and Nectarine are subject to cast their crops, as is well known to experienced cultivators—namely (1) shortly after the fruit has set—imperfect fertilisation; (2) just before commencing the stoning process—defective ovule formation; (3) near the close of stoning—unmineralised stone formation, commonly due to excess of nitrogenic nutrition, or imperfect elaboration and assimilation on the part of the plant; (4) lack of nourishment just when the fruit commences ripening—overcropping, excessive evaporation, or insufficient supplies of water. The fruit in your case represents the second of the stages above mentioned. Two of the specimens—one oval in form and relatively large, the other rounded in shape and comparatively small—were carefully examined. Singularly both contained two ovules, and in the pointed fruit one of these was brown and the embryo dead, while in the blunt fruit both the ovules had sound embryos. One of the fruits we suspect had fallen, and the other been taken off the tree by hand. On the outside and at the base of the larger and conical fruit was a depressed spot—indeed, a hole, and in that cavity a number of abnormal hairs, whereon were situated oval eggs—*Phytoptus persicae*, the Peach tree gall mite, "miller" of France, and known since 1851 (Ann. Soc. Ent. France). This had no connection whatever with the dead ovule. In the ovule were mycelial hyphae of the stone fruit brown rot fungus (*Monilia fructigena*), and it had entered by the nipple—stigma, or style of the blossom. This fungus is a common cause of gumming in stone fruits, the branches as well as the young shoots dying off suddenly and without apparent cause, and frequently of the flowers not setting. It always affects sappy trees most, hence trees subject to it produce wood spasmodically, for the parasite exploits the host plant, even when weakly, in order to provide itself with abundance of food. We found the most relief to accrue from lifting the trees, the effects of which are seen in wood which is not liable to favour the parasite. It is doubtful if any outward application has any deterrent effect after the flowering is past; besides, the use of sulphate of copper is not advisable, as Peaches hold the carbonated copper, and may not be safe. We have found, however, that spraying with sulphate of copper—1 oz. to $1\frac{1}{2}$ gallon of water—just before the blossom buds commence swelling has a good effect, and can then do no harm. The thing, nevertheless, is to get the trees into sound health, and to that end we advise lifting at the proper time.

Manures and Their Application (W. T.).—You ask for a cheap work on this important subject. We do not know of any manual conveying so much information relative to the different kinds of manures, their nature and uses, for so small an outlay of money as you can obtain by sending 6d. in stamps to Mr. W. Dyke, Cranbourne Nursery, St. Margarets, Ware, Herts. The overwhelming majority of young gardeners might study it with advantage, and many of their seniors too. It contains thirty-one closely printed pages in a paper cover.

Vines Infested with Thrips (Tyro).—To destroy the thrips, with which the specimen you send is infested, you must fumigate with good tobacco paper, taking care to have the foliage dry, and not to give an overdose. The great evil of thrips is that fumigations, even nicotine vapourisations, for their extirpation need to be repeated at intervals of a few days, because the first application only destroys the insects then existing. The Vines in the course of a week or ten days may be again infested with thrips simply because another generation has appeared. Repeat the fumigation at not more distant intervals than a week for a few times, but avoid it while the Vines are in flower.

Vines after Dressing with Petroleum (S. R.).—The picture you draw of the Vines is a very accurate one, and shows the importance of not taking advice from other than practical and experienced cultivators. We have often drawn attention to the dangerous practice of using petroleum on Vines, the oil does not mix with water, and has often done irreparable injury. The man who recommends the use of pure paraffin to Vines is a dangerous adviser. As for red spider, it remains on Vines from year to year, and no matter how properly ventilated and cared for the house may be, Vines are subject to it without special care. It delights in a dry atmosphere, and attacks Vines badly nourished at the roots. Yes, Alicante is more robust than Black Hamburgs and most white Grapes, and that suffices to account for the difference in the injury inflicted. There is no question that the petroleum combined with the severe peeling did the mischief. Only the soluble form should be used, even as a winter dressing for destroying the hibernating red spider or eggs. Several people record having seen spiders hatch from the red eggs in spring, but red spider eggs are white, and the "insect" does not hibernate in them.

Manuring Vines (A. M.).—The "exact quantity of human excrement required for each Vine of one rod" cannot well be stated, as you do not mention the extent of the rod or border space. If the Vine has as much rooting area as the amount of rod space you may put on an inch thickness of ordinary earth-closet manure in a crumbling condition, and point into the soil after the Vines have been pruned, afterwards dressing with one of the advertised Vine manures at the rate of 4 czs. per square yard before the Vines come into leaf, or when swelling their buds, pointing in lightly, or washing in moderately after the soil has been brought into a proper state of moisture. Repeat when the fruit has set, and again as soon as the stoning is completed. These three dressings, amounting to three-quarters pound per square yard of substantial Vine food, with the night-soil dressing, will give you splendid results, at least it has a market grower, whose produce in bulk and quality it would be difficult to excel. As for liquid-manure water we do not see that you will want much of it, but if you consider the Vines need more vigour you may dissolve a quarter ounce to a gallon of water of sulphate of ammonia if the soil be rather strong, nitrate of soda if the border be of a light or calcareous nature. This may commence after the Vines come into leaf, continuing as the border needs supplies of water until the Grapes change colour for ripening, when discontinue its use. You must exercise your own judgment as to when the border needs watering, taking care not to make the soil sodden, and thus inducing shanking, whilst not allowing the Vines to be distressed through lack of due supplies.

Utilising the Refuse of a Cigar Factory for Fumigating (W. T.).—The fumigating sheets in general use are prepared in various ways, the process of which is only known to the proprietors. We have known the "refuse"—an exceedingly valuable material, when care is taken to keep it perfectly free from sulphur, for fumigating fruit and plant houses—utilised in the following ways:—1. Dissolve a tablespoonful of saltpetre in a pint of water. Take pieces of the coarsest brown paper, 10 inches long and 6 inches wide, and when the saltpetre is dissolved steep thoroughly in the solution, then dry them, and keep till wanted. When required to fumigate, roll each piece of prepared paper lengthwise into a pipe, leaving the hollow not less than half-inch in diameter, which fill with the cigar refuse, and twist one end of the pastille. This end may be inserted in flower pots filled with soil, sticking the pastille erectly; light the other end, and it will burn out gradually. With a number of these disposed through the house according to size fumigation can be very effectively carried out without being subjected to the smoke beyond the time taken in lighting. 2. Prepare sheets of coarse brown paper as per 1, and when dry brush them on one side with a solution of gum arabic, a tablespoonful to 1 pint of water, dusting on the damp surface as much cigar refuse as will adhere or cover it. Allow to dry; then dress the other side in a similar manner, drying and keeping for use as required. These sheets are simply placed on or in empty flower pots and left to smudge or burn out. In both cases a certain degree of moisture is necessary to secure steady burning, the comparatively slower the better. Perhaps you may be able to improve upon the modes of preparation given, or some of our correspondents may know of better. We may say that 1 oz. of the cigar refuse to half a gallon of boiling water in a vessel covered up until cooled makes excellent tobacco water, and if then strained through muslin is fit for

spraying or syringing on plants infested with aphides, thrips, and other pests, it being still the best mode of cleansing fruit trees from "flies" and "grubs" of all kinds.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (Devonian).—The specimen you send is of *Cerasus virginiana*, of which you will find some interesting particulars with an illustration on page 459. (W. S.).—*Orchis mascula*. (Wilts).—*Geum rivale*. (C. G. M.).—1, *Cerasus* (*Prunus*) *Padus*; 2, *C. serotina*. (F. V.).—1, *Campanula garganica*; 2, *Weigela rosea*; 3, *Viburnum Opulus*; 4, dead. The flowers are of *Streptosolon Jamesoni*, an easily cultivated greenhouse plant, which well grown and carefully trained forms a very beautiful object. (A. M.).—*Mackaya bella*.

COVENT GARDEN MARKET.—MAY 26TH.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	0 0	to 0 0	Lemons, oase	11 0	to 14 0
Filberts and Cobs, per 100lb.	0 0	0 0	Plums, $\frac{1}{2}$ sieve	0 0	0 0
Grapes, per lb.	2 0	3 6	St. Michael Pines, each ..	3 0	8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100	0 0	to 0 0	Mustard and Oress, punnet	0 2	to 0 4
Beans, $\frac{1}{2}$ sieve	0 0	0 0	Onions, bushel	3 6	4 0
Beet, Red, dozen	1 0	0 0	Parsley, dozen bunches ..	2 0	2 0
Carrots, bunch	0 3	0 4	Parsnips, dozen	1 0	0 0
Cauliflowers, dozen	2 0	3 0	Potatoes, per cwt.	2 0	4 9
Celery, bundle	1 0	0 0	Salsafy, bundle	1 0	1 0
Coleworts, dozen bunches	2 0	4 0	Seakale, per basket	1 6	1 0
Cucumbers	0 4	0 8	Scorzonera, bundle	1 6	0 0
Endive, dozen	1 3	1 6	Shallots, per lb.	0 3	0 0
Herbs, bunch	0 3	0 0	Spinach, pad	0 0	4 0
Leeks, bunch	0 2	0 0	Sprouts, half sieve	1 6	1 0
Lettuce, dozen	1 3	0 0	Tomatoes, per lb.	0 4	0 9
Mushrooms, per lb.	0 6	0 8	Turnips, bunch	0 3	0 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (various) doz.	6 0	to 36 0	Fuchsias, per dozen	6 0	to 9 0
Arum Lilies, per dozen ..	8 0	12 0	Genista, per dozen	6 0	10 0
Aspidistra, dozen	18 0	36 0	Hydrangeas, per dozen ..	9 0	12 0
Aspidistra, specimen plant	5 0	10 6	Lilium Harrisii, per dozen	12 0	18 0
Azalea, per dozen	18 0	36 0	Lobelias, per dozen	4 0	6 0
Calceolarias, per dozen ..	4 0	8 0	Lycopodiums, dozen	3 0	6 0
Dracæna, various, dozen ..	12 0	30 0	Marguerite Daisy, per		
Dracæna viridis, dozen ..	9 0	18 0	dozen	6 0	0
Erica, (various), per dozen	9 0	18 0	Mignonette, per dozen ..	4 0	6 0
Eunymus, var., dozen	6 0	18 0	Myrtles, dozen	6 0	9 0
Evergreens, in variety, per			Palms, in var., each	1 0	15 0
dozen	4 0	18 0	.. (specimens)	21 0	63 0
Ferns in variety, dozen ..	4 0	18 0	Pelargoniums, per dozen ..	9 0	15 0
Ferns (small) per hundred	5 0	8 0	.. Scarlet, per doz. ..	4 0	8 0
Ficus elastica, each	1 0	7 0	Spiræa, per dozen	6 0	9 0
Foliage plants, var. each	1 0	5 0			

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	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches ..	1 6	to 3 0	Marguerites, 12 bunches ..	2 0	to 3 0
Arum Lilies, 12 blooms ..	2 0	4 0	Mignonette, dozen bunches	3 0	6 0
Asparagus Fern, per bnch.	2 0	3 6	Myosotis, dozen bunches ..	1 6	2 0
Azalea, per dozen sprays ..	0 6	0 9	Narciss, (various), dozen		
Bluebells, dozen bunches ..	1 0	1 6	bunches	1 3	4 0
Bouvardias, bunch	0 6	0 9	Orchids, var. doz. blooms	1 6	12 0
Carnations, 12 blooms ..	1 0	3 0	Pæony (English), Pink,		
Cornflower, dozen bunches	9 0	12 0	dozen bunches	9 0	15 0
Eucharis, dozen	3 0	4 0	Pæony (English) Red,		
Gardenias, dozen	2 0	4 0	dozen bunches	4 0	5 0
Geranium, scarlet, doz.			Pæony (French), per bunch	0 6	0 9
bunches	4 0	6 0	Pelargoniums, 12 bunches	4 0	8 0
Iris (various), doz. bunches	6 0	12 0	Polyanthus, dozen bunches	1 0	2 0
Lilac (English), per bunch	0 6	1 0	Pyrethrum, dozen bunches	1 6	3 0
Lilac, White (French), per			Roses (indoor), dozen ..	0 9	1 6
bunch	3 6	4 0	.. Tea, white, dozen ..	1 0	2 0
Lilium longiflorum, 12			.. Yellow, dozen (Nicks)	1 6	4 0
blooms	2 0	4 0	.. Red, dozen blooms ..	1 6	4 0
Lily of the Valley (French),			.. Safrano (English), doz.	1 0	2 0
per bunch	1 0	1 6	.. Pink, per dozen	4 0	6 0
Lily of the Valley, 12sprays,			Smilax, per bunch	4 0	5 0
per bunch	0 6	1 0	Tuberose, 12 blooms ..	1 0	1 6
Maidenhair Fern, per dozen			Tulips, dozen bunches ..	2 0	6 6
bunches	4 0	8 0	Wallflowers, dozen bunches	1 6	4 0

GARDENERS' CHARITABLE AND PROVIDENT INSTITUTIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—*Secretary*, Mr. G. J. Ingram, 50, Parliament Street, London, W.C.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—*Secretary*, Mr. W. Collins, 9, Martindale Road, Balham, London, S.W.

ROYAL GARDENERS' ORPHAN FUND.—*Secretary*, Mr. A. F. Barron, The Royal Gardeners' Orphan Fund, Chiswick, W.



ON SPOILING GOOD LAND.

NOT intentionally, by any means; ignorance has more to answer for than pure malice. There are very few malicious people about, but a good many ignorant ones, and endowed with that most hopeless form of ignorance, overwhelming conceit; a conceit that makes them both deafer and blinder than the nations who sat in darkness, of whom the prophet spoke.

The worst of it is that some of the good land has been spoiled at great expense. The money has been deliberately thrown away—buried fathoms deep. Some startling facts have lately been presented to our notice by the Rev. E. Adrian Woodruffe-Peacock, F.L.S., F.G.S., a Lincolnshire vicar, a man who thoroughly understands what he is talking of. He is speaking of drainage on heavy low-lying soils. He is a man of great observation, and he throws a light on several things that have puzzled us for a long time. We heard the same questions discussed years ago in our childhood's home, where much money was annually expended in draining and re-draining the strongest of Holderness clays.

Within the last twenty years a material change has come over our farming, and we no longer find the fine Wheat crops we used to know grown on strong land. The crop now is not worth the labour of production, and therefore the golden grain has given place to pasture land.

A generation ago draining on the whole was neglected, then came a time of reaction, and, as is generally the case, the new converts were ardent, zeal not being tempered with discretion, and the consequence has been that in dry times the land is perfectly denuded of every drop of moisture. The cattle have no drinking places, and the dykes that stand instead of fences are simply useless.

Mr. Peacock says:—"Many of our unyielding clays are as good as impervious to water a little below the soil limit. In such stiff clays the pipes should be laid as near the surface as is consistent with avoiding agricultural operations, and with retaining their proper position under the pressure of cartage."

Some of our less impervious clays which were drained in bygone years for Wheat growing are much too deeply sapped for grass in a dry season. Wheat has a water root, which will go down till it reaches moisture; grass not having that natural advantage dries out and perishes. It is difficult to bring that water back again, and we have had these last dry seasons to pay the price of our forefathers over zealous draining. The price has been paid twice.

Has anyone noticed what a shrinkage there is when peat land has been drained? Whittlesea, Mere sank 9 inches per annum for the first ten years after it was drained. On such soil pipes are practically useless, the area is elastic and shrinking, and the pipes by pressure from above soon become unlevel, and get choked. Tiles and flats obviate this difficulty, the tiles meeting in the middle of a flat, and the flats in the middle of a tile. The pressure from above on a tile carries the junction of two flats with it; the tiles at either side on the other ends of the flats keep them in their places.

On grass land there should be no stagnant water in the surface soil, and just below heat, air, and rain will enter freely. "Drain too much, so as to destroy the capillary from the water table supplying the loss of moisture from evaporation, the heat produces drought, and the air, finding free access, but lacking the moisture, which is its brother workman, proves a curse rather than a blessing by draining the soil still further of its water, as tens of thousands of acres of valuable pasture and meadow demonstrate to the eye that can see at this moment."

But excessive draining is not the only way of spoiling good land. To anyone who has much acquaintance with farm leases or agreements we need not speak of the rigid laws therein laid down. In most, except perhaps a few very modern ones, the farmer is tied hand and foot. No variation in season, no fluctuation in price, no land sickness are allowed for. Who has not heard of Clover sickness and finger and toe in Turnips? Whereas a little judicious cross-cropping would put money into the farmer's pocket and heart into the land.

We know farms where a farmer daring to grow Potatoes would, if leaving, be mulct to the extent of £5 per acre for all his Potatoes, although at the same time no one could deny the magnificence of the following Wheat crop or the garden-like cleanliness of the soil. There was another little fad which at one time proved a most useless and expensive experiment—we refer to steam cultivation. If Mr. Peacock speaks of thousands of acres of good pasture wasted by injudicious draining, what of thousands of acres of good arable land utterly ruined by the bringing up of bad useless subsoil? Land does not get over treatment of that sort for one generation, and nothing will make stiff tenacious clay change from the character of bullock's liver in consistency as well as colour.

WORK ON THE HOME FARM.

Instead of becoming warmer the weather has been colder and colder every day. It was cold enough when the wind was in the north-west and north, but now there is a spice of east in it the temperature is more like March than May. Several frosts have been noted in the early mornings, but not so severe as is reported from other districts. Rain is beginning to be seriously wanted; there is no absolute drought, and there is plenty of moisture beneath the surface, but the frosts and dry cutting winds have had a bad effect on young vegetation, and rain is the only antidote. Let us hope when it comes we may have more genial weather with it.

The later Wheats have again shown improvement, but the earlier ones have still further gone back. Barley and Oats on sound land still look fairly well; on the other hand many fields show patches of yellow, indicating places where either the subsoil is weak or the drainage deficient.

Thousand-heads are up, and look well; Mangold comes up slowly, and is almost as well under ground as the weather is now; early Swedes and Turnips are all in, but not up yet. We are only waiting for a nice rain to mellow the soil and improve the tilth, and we shall at once have in the main bulk of the Turnip crop.

Though it has been a bad time for growing crops, it has been capital for dealing with weeds and twitch, and cleaning of fallows is now quite completed. It is almost a record, for we can with difficulty remember such an early and satisfactory finish. We, whilst waiting for rain, can afford to give the horses a rest, and send all hands to the hoe. Wheat has been looked over, and has not furnished an arduous task.

Barley and Oats are rather full of thistles, worse than we had thought, but are being rapidly run over. Potato weeding is the next operation. The tubers have been slow in sending up the young shoots (fortunately so), and very few are appearing yet, so we have to wait as cleaning cannot be done with safety until nearly all are showing. Live stock are looking fairly well on bare pastures.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet

DATE.		9 A.M.				IN THE DAY.				Rain.
1897. May.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.	
Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.	
Sunday 16	30.387	55.0	47.4	N.	50.7	68.3	39.7	112.6	32.6	—
Monday 17	30.125	59.1	52.9	N.E.	52.9	76.1	46.8	118.9	40.4	—
Tuesday 18	30.090	64.8	57.6	N.E.	55.1	78.0	50.4	124.7	46.2	—
Wednesday .. 19	30.163	54.7	48.9	N	56.2	69.1	44.1	113.1	40.4	—
Thursday ... 20	30.051	53.9	47.6	N.	58.2	74.2	41.4	117.3	38.3	—
Friday ... 21	29.981	63.4	52.9	N.E.	57.6	70.7	47.1	122.1	41.1	—
Saturday ... 22	29.880	55.6	49.9	N.	57.8	66.1	42.9	115.0	38.0	—
	30.097	58.1	51.0		55.2	71.6	44.6	117.7	39.6	—

REMARKS.

16th.—Bright sun almost throughout, but high wind and some cloud in afternoon.
 17th.—Fine, but not much sun before 11 A.M.; bright and warm after.
 18th.—Bright sun almost throughout; warm day; cool breeze in evening.
 19th.—Cloudy early; bright sun from 9.15 A.M.
 20th.—Bright sunshine almost throughout, but a little cloudy at midday.
 21st.—Bright sunshine throughout.
 22nd.—Bright and clear throughout.
 Another rainless week—in fact, the drought has now lasted seventeen days. Very high temperatures on several days.—G. J. SYMONS.

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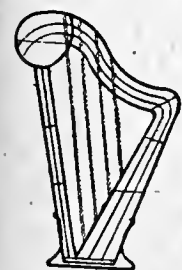
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Journal of Horticulture.

THURSDAY, JUNE 3, 1897.

OPEN AIR TOMATOES.

TOMATOES having succeeded so well in the open last season, they will be grown in still greater numbers this summer. Plants I mean, not fruit, as it is not to be expected that such exceptionally heavy crops, good in quality as well as in quantity, will be obtained oftener than once in three seasons. The Tomato is an American fruit, and we had an American summer in 1896. Complete failures there need never be. What I mean to say is, that the southern cultivator is to blame if he fail to gather enough ripe fruit in a bad season to pay for the trouble of growing, and the small unripe fruit which can be turned to account in various ways represents the profit.

Open air culture of the Tomato, as it happens, does not invariably partake of the character of a lottery as sometimes asserted. A grower near Bexley Heath, in Kent, devotes about 5 acres of ground to Tomatoes, commencing, if I remember rightly, in 1891. In that season enough fruit was marketed to pay for the ground, and that after paying all working expenses. When asked how many failures he has had since, the reply was, Not one. He had not had a single bad year out of the five, and the crop of 1896, as I saw, promised to be a record one. Amateurs, and not a few professional gardeners, are under the impression that Tomatoes can only be successfully grown under glass, and against sunny walls, fences, and screens in the open. The thousands of plants annually put out at the Bexley Heath farm alluded to are sheltered by a wood on the north and north-east only. I, too, have grown thousands of plants quite in the open for the last three seasons, and all the shelter these had was afforded by rows of tall Peas and Runner Beans.

It must not be thought that I attach no great value to the warmth and shelter afforded by a sunny wall or fence. On the contrary, I would, where possible, utilise every blank space on sunny walls for Tomatoes, but such luxuries are not generally available, especially for the production of tons of fruit. My point is that they can be dispensed with. The amateur may grow his score or so of plants, the professional gardener his hundreds, and the market grower his

thousands quite in the open. Not necessarily in the hottest and best sites, or, say, borders in front of walls facing south, but equally as well in a sunny quarter, sloping to the south for choice. My ground in Somerset slopes nowhere in particular, but the soil is moderately warm and free working. The Bexley Heath ground appeared to be composed largely of pebbles, and thanks to these stones the plants do not suffer from drought so quickly as mine do.

Preparation of the ground merits a separate paragraph, not because there is any important secret to be disclosed, but merely because it is simplicity itself compared with orthodox instructions as set forth by old masters. What I advocate is that Tomatoes require much the same treatment, as far as preparation of the ground is concerned, as Potatoes. One, two, or three shovelfuls of fresh fibrous loam with a sprinkling of bonemeal added may answer well when only a dozen or two plants are grown, but is out of the question in the majority of cases. Dig in half-decayed mixed farmyard or good horse stable manure freely and deeply, doing this if the soil is of a clayey nature early enough in the year for it to become well pulverised before May, and that ought to be sufficient preparation. If the manure is the usual old, quite decayed hotbed stuff common to so many gardens, then I would add a dressing of Thomson's, Albert's, Clay's, or other maker's manures at planting time, stirring, not digging this in.

Why I suggest that the ground be got into a free working condition before May is because this affords a good opportunity for double or intercropping. My plan is to plant early Potatoes in long rows, 3 feet apart, and midway between these the Tomato plants are put out in due course. We are later than usual in planting the Potatoes—luckily so as it happens. If planted during the first three weeks in April they would most probably have "come up" by May 11th, in which case all not covered would have been blackened by a severe frost. Late planted as they are they will not interfere with the work of planting or future progress of the Tomatoes, and both crops will be all the better for the ample room allowed them.

What and when to plant have next to be discussed. The rage for handsome, smooth, round fruit has seriously militated against the success of many growers of Tomatoes in the open. We all like them; but the more shrewd market grower prefers a certainty, even if accompanied by comparatively low prices, to an uncertainty with a gain of one penny per pound for what produce may be sold. I cannot name a single smooth round sort that does not crack badly in showery weather. They are as bad as Gooseberries and Cherries in this respect, and cracked fruits are not wanted.

There are several corrugated varieties available that are not so coarsely ribbed as the old Large Red, and of these the best are Early Ruby, Laxton's Prolific, Earliest of All, and Laxton's Open Air. The old Keye's Prolific is also reliable, and heavy cropping. I have had Ruby fruiting in masses from the ground to a height of 30 inches, and at Mr. Hammond's fruit farm near Brentwood, Essex, I saw last season racemes of fruit on Laxton's Prolific fully 18 inches long. This season I am only growing Ruby and Laxton's Prolific extensively, and in neither case will many really coarse fruit be seen on the plants. It is true the first large flowers on Ruby would, if left alone, be followed by large, unshapely fruit; but these are invariably pinched off early, the rest of the crop benefiting accordingly. There may be a little cracking of fruit going on whenever the weather is showery, but it will be trifling compared with what would have happened had smooth round fruited varieties been grown.

Large plants in 6-inch or larger pots in flower, or with fruit already set upon them, are things of the past in my case, and will never again be recommended for planting out by me. At the present time we are discarding strong plants in 3-inch pots, or such as might be given a shift into larger sizes at once, in favour of others only just recently placed singly in 2½-inch pots. By the end of May these will be about 5 inches high, strong, and well

rooted. At this stage and size they can be rapidly planted out, and are in just the right condition for becoming quickly established in the surrounding soil. This applies to any planted against walls as well as in the open. When turned out of larger pots much more water is required at the outset, and if this is not applied what becomes of the first bunch of flowers? My small plants are growing strongly before the first flowers show, with the result that these do not drop off prematurely, but are followed by fruit. If the weather is favourable our planting will be done during the last week in May, but should the nights keep cold and frosts be imminent, the planting will be deferred another week. The Bexley Heath grower is sometimes a fortnight earlier in commencing planting, and once completed his five acres early in May. It is to be hoped he has not been quite so venturesome this season.

When grown quite in the open Tomato plants must be kept fastened to either stout stakes or bamboos secured to a single wire. I find the latter plan the cheaper, and it answers admirably. Light 3 feet bamboos will be thrust into the ground at a distance of 15 inches apart in the rows, and fastened near the top to a light wire strained to stout stakes at distances of about 20 feet apart. This will be done in advance of planting. If only a few were grown inverted flower pots or other form of protection could be used if necessary, but our plants will have to rough it. According as they grow all are secured to the bamboos. Not a side shoot is allowed to develop, or at any rate not if it can be helped, and if need be the plants are topped when nearing the wire.

We sometimes see it stated that Tomatoes in the open ought not to be watered. I tried dispensing with the hose and watering-pot, and also with the usual mulching of manure, but it would not work. Last season only the well mulched, heavily watered rows produced remunerative crops. Those treated to lime from chalk, those not mulched, and those that did not receive enough water collapsed wholesale, apparently from the drooping disease. This season they will be grown as strongly as possible.—W. IGGULDEN.

HARDY FLOWER NOTES.

SPENSER tells us that "May is the fairest maid on ground," and it is difficult when in the full enjoyment of the sweet flowers of early summer to question his words. True, up to the time of writing, this year the fair maid has been in hoyden humour and careless of her floral garlands. Her breath has not been sweet and balmy or her movements gentle and graceful. She has been rough in her ways, and has tossed about the tender flowers as worthless things fit only to be spurned and despised. Yet with all how delightful the time! Tree and bush, hedgerow and meadow of the brightest and freshest green, save where the flowering trees and shrubs have essayed—and not in vain—to outshine the others clothed only in their exquisite verdure. Orchards are feasts for the eye, as hereafter they will yield to the palate its share of the bounties of the year. In gardens where the fruit trees are to be found beside the flowers there is friendly rivalry as to which will please the more. We know of many such gardens full of interest from month to month.

In some a Clematis or other slender climbing plant yearly finds its needed support among the branches of the trees, and adds beauty to the garden. Perhaps there may be a few Apples or Pears less, but those which do grow give a finish to the picture in autumn, when Sunflowers glow in the border and Hollyhocks rear their spires among. One cannot say so much of every garden, but in some old places what Herrick calls

"The blushing Apple, bashful Pear,
And shame-faced Plum"

never look out of place beside the flowers, even when the exquisite bloom of a Clematis looks out coquettishly from among the fruit.

These thoughts arise as one looks upon a fine plant of *Trillium grandiflorum* which has for some days been delighting us in its moist, half-shady nook of the rock garden. Beautiful as it is, large as are its flowers, it is less beautiful and its flowers are smaller than those of the parent plant, which, in another garden, flourishes beneath the branches of an Apple tree. Those who see a small

plant of this Trinity Flower cannot realise the effect of a mass of purest white rising among the fresh green leaves, strong and vigorous, unlike the plants we so often see.

By the little Water Lily pool the double *Caltha palustris* is thickly studded with its large golden buttons. It is more happy there than in the dry borders, and is evidently in luxuriant health where it grows in the wet soil and with its roots running down into the water. Comparatively common though it is, this old double Marsh Marigold shows how fine a plant becomes when it receives congenial fare. On another side the sister *Caltha leptosepala* is happy too, but its white flowers suffer in comparison with those of the commoner species. *C. leptosepala* has been tried in several positions, but with its roots in the water it is evidently more happy here than anywhere else. It does not cover itself so freely with flowers as *C. palustris* fl.-pl., but produces them more sparsely for a long time in succession. It is a native of North-West America, whence it was introduced in 1827. The pure white flowers are produced from one to two (but generally one) on rather long peduncles, and are here about three-quarters of an inch across. The glossy green leaves are radical, cordate, and generally entire round the edges, but are occasionally crenate. It is said to be described and figured in Hooker's "Flora Boreali-americana," vol. i., plate 10. As already said, it is evidently happier with its roots in the water than anywhere else, but does fairly well in a half shady moist nook in the rock garden also. It is certainly not a showy or effective plant, but gives a pleasing variety where there is room for a large collection. The English name of Slender-sepaled Marsh Marigold is not particularly attractive, although somewhat alliterative.

The quaint-looking *Epimediums* generally attract admiration by reason of their singular-looking flowers and their slender habit, combined with the exquisite tints assumed by the leaves at different seasons. The European *E. alpinum* is attractive, and, although naturalised in Britain, is worthy of a place in many gardens. The Japanese *E. Muschianum* is at present very pleasing close to the edge of a narrow border. *Mussche's Barrenwort* is not so fine as *E. macranthum*, perhaps the finest of the genus, but is very suitable for such a position as that in which it is grown here or for the rock garden. The little flowers are described by some as dull white, but the qualification of "dull" does a little injustice to the blooms. They are not of the purest white, but do not look "dull white" when seen on the plant with its fresh-looking leaves formed of nine little cordate-ovate leaflets. It came from Japan about sixty years ago, and a figure of it will be found in the "Botanical Magazine," table 3745.

Near at hand, but presenting a great contrast to the unassuming beauty of the Barrenworts, is a clump of the old Tulip known as Golden Eagle. There has been of late a general effort to ascertain the correct names of some of these old garden Tulips now having their renaissance. This variety has pretty well proved its right to the name, which has also been applied to another showy one, the correct name of which is Golden Crown. The latter is at first entirely pure yellow, and then becomes edged with red, which gradually broadens as the flowers reach and pass their perfect stage. Golden Eagle, on the contrary, retains its bright yellow—perhaps a little deeper than that of Golden Crown—to the end, and is also less pointed in the segments, and with me is hardly so tall. I believe both are referred to *T. Billietiana*, which appears to be rather a variable species, and comparison certainly gives strength to this view. Many persons, of whom I am one, have been misinformed about which was the true Golden Eagle, so that others may be the better of the present remarks. Both are effective Tulips among herbaceous plants, where their flowers are seen to great advantage.

Soon the Narcissi will be gone for the year, and before they depart one would like to say a word or two about the smallest and neatest of the Burbidgei group. Possibly we have too many varieties among these hybrid Narcissi, and the value of some is reduced here by their flowering, not before but contemporaneously with *N. poeticus ornatus*. There are, however, some very beautiful flowers among these, and admirers of the Narcissus are pleased that one group at least bears the name of the talented curator of Trinity College Gardens, who has done and is doing so much to increase the knowledge of, and love for the Daffodil. In gathering together my small collection of this group I have included a good proportion of those with yellow or primrose coloured perianths to form a pleasing variety to the early flowers of the poeticus group. Among these is the one referred to, Little Dirk, a charming little flower of sturdy habit and good substance, with pleasing primrose perianth, and a small cup with a bright orange-scarlet edge. Those who like large "floppy" flowers had better leave it alone, but the many who admire small blooms of perfect form might with advantage add *N. Burbidgei* Little Dirk

to their gardens. Too soon the Poets' Daffodils will have departed to join the others in their summer sleep. Meanwhile we look on them admiringly among the throng of other flowers which have welcomed the coming of summer, and of which there is no space to tell.—S. ARNOTT.

IN SEARCH OF SUNSHINE.

THE LEAFY GROVES OF SANS SOUCI.

WHEN the sun is glinting the young leaves in the magnificent avenue of the Unter den Linden, when its hot rays stream from the white columns of the Brandenburger Thor, then does young Germany wend its way to Potsdam. Make no charge of exaggeration regarding the word "hot." It was the 28th of April, but a sun of fine midsummer quality beat down on the queenly capital of Germania Unita. The white-hatted cabbies (some of whom have heads too large for their hats, and others hats too large for their heads) wagged placid slumber; the café proprietors took out their shop fronts bodily, and tossed them no one knows where; and dewy globules sparkled on the duel-scars of the long-legged officers. Happy those whose way took them through the green and shadowed grove of Berlin's great road to the home of her warrior kings.

I had made no particular noise about my intention to visit Sans Souci, nevertheless I found a considerable crowd at the station. My gratification at this fact was modified by the discovery that special fast trains were running, and this afforded another explanation of the presence of so many. It is just half an hour's run from the important station called the Potsdamer Bahnhof, and here let me express a sense of what is due to those authorities who have made Berlin what Bismarck made Germany—great, imperial, and impressive. The plan of the town is such as to make a candid cockney weep for his poor, tortuous muddle of a London. Charles Dickens secured immortality for Mr. Weller the younger when he gifted him with a knowledge of the dear, dirty, old metropolis that was "extensive and peculiar;" but a German Dickens could not make a German Sam by a similar stroke of genius. The great streets of Berlin run in a vast series of parallelograms, and anyone with ordinary intelligence can swiftly learn to make his way from one part to another without rambling into blind alleys, or taking short cuts which add to the distance. Moreover, the local railways put plans of their system in the compartments. There is a Ringbahn or circle railway in addition to the great State lines, and by a little study of the plan the whole town can be traversed without troubling to worry people with questions in a language you only half understand.

Berlin does not plant trees in all its streets, but in addition to the wonderful Linden avenue, which is some 70 yards wide, and is a Piccadilly, Rotten Row, and Clapham Road (with the tram lines) all in one, there are others, such as the Königgrätzerstrasse, that are tree-lined. The latter skirts the large park known as the Thiergarten, and leads direct to the station which is in special connection with Potsdam. There are dozens of streets wider, finer, and infinitely cleaner than Regent Street. All the buildings are lofty and massive. They are not of solid stone, although they look like it; but the bricks are faced with what may be termed plates or moulds of a white composition, by the universal use of which a striking and bold uniformity is secured throughout the whole of the City. It would be of no use to follow the same plan in London unless a facing compound could be employed that would defy the persistent rain of powdery filth that makes us so sombre and gloomy. We could use more trees, though, especially in the making of new thoroughfares.

There was to be a horticultural party to Potsdam on the Saturday following the opening of the great exhibition, but I had to be elsewhere on that day, and so I went earlier alone. In this, had any formidable obstacle loomed up, I could have found encouragement in the example of Smollett, who liked foreign travel, and liked to go by himself. I have referred to the large number of others who went also. I was a little surprised to see them all take to their heels as soon as they got out of the train, but the explanation came when I turned a corner, for there was a pleasant stream, and a pleasant bier-garten beside it and a pleasant steamer on it. I had no idea where the latter went save a vague speculation that it might be to Sans Souci by a back water way; but I might have boarded it had there been a square inch of surface left. The people, however, were packed like American Apples in a barrel, and were just about as plump and rosy. It is not often a German beer-garden is seen empty on a hot day, but

the world and his wife had flocked on to that vessel and packed it to the tip of the funnel.

The old castle of Sans Souci is about two miles from Potsdam railway station. It can be reached by a tram, but I preferred to walk. A gentleman awaited me at the gates. He might have been taken for a delegate from the authorities, but the air of rapacity lurking beneath the mask of smiles upon his face, not less than his wild flow of conversation, proclaimed him for what he was. He begged to offer his services to the noble Herr as a guide. The noble Herr vanquished him by a slight variation of Curran's method with the fish wife, informing him (in English) that if he could promptly lead the way to the beds of *Rhododendron ponticum* he should be engaged regardless of expense. I may remark that I exercised a certain amount of caution in entering all gateways. The military element is all-powerful in Germany, and Potsdam itself is a town of soldiers. My care arose from the fact that I have understood the plan adopted is to shoot first and argue afterwards—a system which did not commend itself to me. However, there was hardly a sentry to be seen, and all was peace.

The grounds are very extensive, and are attractive in the height of their spring beauty. I entered them by what I believe is known as the Obelisk Gate; anyway, there is a hieroglyphic erection near which bears so striking a resemblance to Cleopatra's Needle, that one might imagine it had been transported there from the Thames Embankment and spring cleaned. A long walk leads from this point along the front of the castle, past the circular basin which contains the famous Sans Souci goldfish. I am not a pisciculturist, but I could not refrain from pausing and admiring the fish. They are veritable monsters, nearly as big as trout, and coloured like a Poinsettia. The veterans looked extremely sprightly and cheerful. They have lived out great events, some of them, and have whisked lively tails while world-moving events, big with the fate of nations, have been talked of near by, but they are youthful and vigorous still. I tempted them with a fragment of antiquated English cake, extracted in a mummy-like state from the corner of a pocket, and national pride did not prevent their making a rush for it. I fancy the winner was a little sobered, though, by the time he had disposed of it. He was a hale old fellow, but short, perhaps, of teeth.

One of the greatest horticultural sights of Sans Souci is the series of terrace houses flanking the sides of the long flights of steps leading up to the centre of the Castle. The latter, it must be explained, is built on a hill, the face of which has been cut out into a series of six terraces, each about 90 feet wide. They are terraces, be it understood, and not banks. Each has a perpendicular face about 12 feet high, and the whole has been covered with glass, so as to form long ranges of Peach houses and the like. They are wide enough not only for the trained trees on the walls, which must give an enormous quantity of fruit, but also for one line of orchard-house trees, such as Pears, in large pots. The latter were smothered in bloom, and the whole presented a very striking spectacle. In front of the houses, or rather cases, on the bottom terrace were planted, at a distance of a few feet, Vines so trained as to stretch across from their uprights to the front of the Peach range. Above there were miles of espaliers, and even such things as trained Currants and beds of Strawberries, so that there is a complete fruit garden.

The remaining space on the terraces is planted with flowers. There are extensive beds of Roses, both standards and dwarfs, pruned, it was noticeable, on lines approved in England. They alone must present a magnificent spectacle when they are at their best. The spring flowers were mostly bulbs and Pansies. In the way of shrubs Forsythias and Magnolias held sway. The former reminded me of modest Sittingbourne, the latter of stately Belvoir. But the beautiful plants which Mr. Divers has to show his visitors are on the Castle walls, whereas those at Sans Souci grow in the open. They are objects of great beauty, being full of noble flowers, and the varieties are not limited to one. There is no thick planting. We have a monopoly of that sort of thing. Many people would think the continentals go to the other extreme, and plant as much too thinly as we do too thickly, but as a matter of fact it is simply a case of fundamental differences in peoples showing themselves. We are secretive, and like to shut ourselves in, aiming at total privacy. The Dutchman and the German are open, expansive, and perhaps a little vain, liking for everything they have to be seen.

A serious disadvantage presented itself when I wanted to get among the houses in the parts closed to the general public. I was

alone, and unable to make my wants understood. I thought it possible that if I were able to explain that I was not a casual but a horticulturist (in however humble a way), and that I represented an English horticultural journal, an exception might have been made in my favour. Unfortunately I did not drop across anybody who understood my pure and academic German, as culled from Otto and other authorities, and my stock of colloquialisms was too short. I have no doubt that the great and gifted Kaiser possesses ranges of vineries and Peach houses; I have likewise no doubt that they are worthy of a few remarks, but I did not see them, and I therefore contented myself with a gaze at the large orangery, then went my way.

I have spoken about the great tree-lined roads of Berlin. I found another of them when I returned from Potsdam and set out to visit the Royal Botanic Gardens. Its name is the Potsdamerstrasse. This magnificent thoroughfare almost equals the pride of Berlin—the marvellous Unter den Linden. It is not so wide, and it lacks the beautiful electric avenue in the centre, but it is of great length and is full of splendid buildings. The Botanic Gardens are open from ten o'clock, I believe; anyway the gates were open when we arrived a few minutes past. No doubt if Mr. John Burns sees this he will utilise it the next time he agitates in the House for the earlier opening of Kew. But fairness demands that the differences between the two places should be pointed out. I would by no means disparage the German Garden, for it is well managed, and does useful work. Moreover, I hold it a very cheap form of amusement to glorify one's own country at the expense of others. Still Berlin is not Kew, and the Germans themselves would be the first to acknowledge it. There is, in fact, a project now afoot for shifting the whole establishment a little further towards the country, greatly enlarging it and improving it in the process. The matter is at present before Parliament, and an early settlement is expected.

I was fortunate enough to have a short interview with the Director, Professor Engler, and also with the Curator, Herr Perring. The accomplished Director is now busy on the conclusion of his great work, *Natürliche Pflanzenfamilie*. He speaks English, and was kind and cordial to a degree. It would be easy to fill a page with a description of the specimens in the museum, but I will content myself with a word or two about the gardens themselves. They comprise many departments. For instance, there is the purely scientific section, which, with its maximum of huge labels and minimum of growth, is known to the irreverent as the cemetery, from which it would appear that feeble wit is not limited to one island. There is, too, the geographical department, in which the plants are grouped according to their habitats, such as those of the German mountains, the Central Alps, the Caucasians, and others. One feature of much interest is the series of frame enclosures, containing (chiefly) bulbous plants. Amongst these were noticeable several Irises, such as *furcata*, *notha*, *Lorteti*, and *Mariæ*; a charming Alpine form of Tulip, *T. pulchella*, very dwarf and with flowers of a vivid carmine; many *Fritillarias*; *Anemone fulgens* var. *purpurea violacea*; *Leontice altaica*; *Ranunculus rupestris*, and a few *Crocus* species. Here and there were groups of shrubs, the brightest of which were the quartette of *Prunus*—*triloba*, *persica*, *amygdalus*, and *nana*. The last named was not the least attractive. It is a true dwarf, wreathed in charming bright pink flowers, and is so useful and beautiful that it is worthy of extensive planting.

The glass department is fairly extensive, but more room and a newer type of house are wanted. The large Palm house contains a number of specimens; indeed, the first to meet the eye on entering is a *Livistona oliviformis* 30 to 40 feet high. There are, too, giant Musas, a fine *Carolinia insignis*, *Sabal Blackburniana* in a tub 5 feet across, and many other notable plants. Orchids are few. I observed *Odontoglossum Uro-Skinneri*, *Phajus Wallichii*, *Epidendrum ellipticum*, and *Cattleya intermedia* flowering in one house. The collection of *Nepenthes* is excellent, and Ferns are very well represented; but the most notable plant in the fernery was the graceful *Asparagus Sprengeri*. It is a most free and graceful plant, well adapted for table decoration. Hardwooded plants are excellently grown, and the collection is representative. The general impression of my visit was that the German botanists make very good use of very limited conveniences. When they get their new establishment they will be treading our economic heels off more determinedly than ever. Alert, energetic, neither too proud to imitate nor too independent to display pliability when their customers' wishes call for it, they are, as traders, a people to reckon with. England must not sleep on her mighty past.—W. PEA.

STYLOPHORUM DIPHYLLUM.

THE Celandine Poppy (fig. 93), though it has been in cultivation in this country for about forty years, is still an uncommon plant in our gardens. It is a hardy herb with a perennial rootstock, and has a considerable resemblance to *Chelidonium majus*, to which, however, it is much superior. It attains a height of 1 foot or 18 inches. The foliage is deeply pinnatifid, soft in texture, greyish-green above, and glaucous beneath. The flowers are freely produced in May and June; they are about 2 inches in diameter, and of a deep yellow colour. The plant is quite hardy, and will thrive in any light garden soil. It is easily raised from seed, and can be increased by division of the rootstock. It is a native of North-west America. *S. japonicum*, the only other species in cultivation, is sometimes confounded with *S. diphylum*, but it is quite distinct. It is a native of Mandschuria and Japan.

PRECEPT AND PRACTICE.

PICTURESQUE GARDENING—WATER.

(Continued from page 428.)

COMPREHENSIVELY bringing all sorts and conditions of water formation under one head for adornment by planting, the subject, for this purpose, roughly resolves itself into two sections—viz, marginal, and, if we may so term it, body planting. Apart from any purpose of the planter to cultivate certain plants successfully without consideration of ulterior effect, so far as the water is concerned, the fundamental rule upon which to base ideas is to regard water as the *pièce de résistance*, and its planting as a garniture, hence the cautious rather than the lavish hand is essential, whilst discretion as to suitable plants is equally important. Circumstances, however, considerably alter cases, and with comparatively deep water the danger of overcrowding may never present itself so far as the body planting is immediately concerned. He who has seen that most perfect picture of its kind, where here and there *Nymphæa alba*, the white Water Lily, floats to adorn but not to hide the bosom of some fair lake; and who has, per contra, seen that yellow buttoned vagabond, *Nuphar lutea*, absorbing the whole surface, will observe how one enhances and the other obscures the lineaments of beauty. So, too, in a degree with marginal planting, which may briefly claim our attention ere proceeding further.

Here a passing glance must be given to those grand opportunities presented for the introduction of our noble foliage or gorgeous flowering plants on the scene, some of which are peculiarly adapted to the position. One needs but to mention a massive group of *Gunnera manicata* or a bold planting of *Tritoma Uvaria grandiflora*—the first on a promontory, the latter on the flat face of an island or other coign of vantage, to illustrate our text, for there is a host of plants suggesting their suitability to the purpose, according to local conditions of climate, shelter, or space. Coming to those things which, like the boys, love to dabble at the edge without getting out of depth, our theme has fascinations which tempt me to digress, and detail a number of varieties for which, indeed, there is no present need, and very possibly it may be that in certain instances their employment should be severely limited. Here we want no impenetrable barrier—just a clump or two of golden or red Willows, or the same of Dogwood, to brighten up a winter scene, and form a note in the harmony without unduly obtruding, and these, of course, according to scale.

Our young designers will, doubtless, grasp the meaning of much that can be merely hinted at, and from that avoid all pettiness of detail in this as well as in other phases of picturesque gardening. Common things will not be despised as means to an end, although their aggressive character may necessitate their limited use, with provision to keep them within reasonable bounds. Our common Water Flag, *Iris pseud-acorus*, is to my mind so inseparably associated with water scenery, that it is practically indispensable; but there are, I know, hundreds of pools and ponds encircled by an unbroken broad band of this plant during the season of growth, which wholly detracts from the general effect. Isolated clumps nourished into those proportions they are able to assume—viz., some 7 feet high—are very beautiful, and tolerably easy to keep within bounds by a little excavating around them, for this plant loves not the deep water. One other plant only need now be mentioned for marginal planting on the larger scale (on the smaller scale it may take a more prominent place)—this is the common *Calla*, the so-called Lily of the Nile. It is seldom seen thus used, hence the reason for including it here; but it is so satisfactory that it should be free to enter every piece of ornamental water in the kingdom. Respecting its hardiness (sometimes questioned), I have seen it planted in a fountain 2 feet deep, and stand the ordeal of being frozen into a solid block of ice without injury.

Apropos of the main planting in deep water, the highest type of beauty that we can imagine in natural water scenery was that witnessed by Sir Richard Schomburgk, who with his Indian guides paddling down the warm waters of the Berbice entered an open lake to find themselves among groups of that glorious natural triumph, the *Victoria Regia*. From this picture with its high tropical tone we descend but slightly, if at all, in the scale of beauty to bring in our beautiful native Water Lily, *N. alba*, already alluded to. It is *par excellence* the plant for our purpose, and when in the days to come M. Marlia's beautiful hybrids occupy the same position nothing more can be desired in this direction. With water exceeding 5 or 6 feet in depth stations can be made for the purpose of planting, and such things as old crates or hampers weighted with stones and packed with turves about the rhizomes of



FIG. 93—STYLOPHORUM DIPHYLLUM.

the Lilies is an admirable method of introducing them to their permanent home.

Hardy aquatics are, in a measure, limited to a few suitable plants, but for obvious reasons that is not a matter for regret. Amongst bog plants we have a greater variety, many of which are beautiful, and all interesting from the particular features pertaining to their culture. Little difficulty will be found necessary to give certain classes of plants that treatment in which they delight with variations to suit their requirements according to season.

There are few objects more charming than a bold group of *Iris Kämpferi* displaying their soft satiny blossoms of many hues amongst the sword-like foliage. One such glorious planting I saw where the wants of these plants had been catered for by a trickling vein of water admitted to them from the main artery of a stream during the growing season, which was again shut off at the approach of winter, keeping them dry and snug during the season of rest. How different this to the common method of dotting these plants through a hardy border, possibly only to exist on sufferance, and in any case never attaining the effect described above, which was indeed a revelation in picturesque planting. Under nearly similar

conditions the elegant North American *Cypripedium spectabile* flourishes, and a hundred things impatient of orthodox restraint or pampering.

As a connecting link with *terra firma* there are our Filmy Ferns, several of which at least could be happily accommodated in some "cool grot" prepared for their reception by a little labour, as they are by infinite pains taken to grow them under glass. If it were necessary to further plead for picturesque treatment, or to press its claims upon those into whose hands will eventually fall the power to promote it, I would ask them to test my observation a theory advanced by a plant lover—viz., that they—plants—have a kind of family sympathy which induces them to flourish best amongst their own immediate kith and kin. However that may be, grouping is the rule, dotting the exception, in this free gardening.

In concluding this subject the question may arise "How much or how little shall I, as a head gardener, be practically tested in the time to come with this class of work, and consequently what attention need be paid to the subject now?" "There are good all-round gardeners who in their successful orbit have steered clear of all such things." That is so; but we are looking to the future, and expecting the call to move in a much wider circle. Our young men, now, probably can do but little more than catch the spirit of such things—form clear conceptions of those lines of beauty more delicately traced in the kingdom of picturesque gardening than elsewhere probably. It is a great subject—a grand subject, worthy and able to comprehend all the recreation required in a quiet life, and in turning to more prosaic things any ultra-enthusiasm kindled by it will not be quenched, merely tempered by the thought that

"What by duty's voice is bidden,
There where duty's star may guide;
Thither follow, that accomplish,
Whatsoever else betide."

—AN OLD BOY.

(To be continued.)

THE BROCCOLI CROP.

THIS crop, as was generally assumed at the end of last summer, has not realised such a profitable return as might be hoped, and as a result of the drought of last summer, and the drenching nature of the winter and spring, the heads are small, and in many cases very scarce. From a commercial point of view this scarcity has advantages as well as disadvantages, for while in a season of plenty there is so much waste, and the intrinsic value so little, there is quite an opposite aspect when the grower and consumer is brought into keener contact, and the value of the goods is greater proportionately with the demand and supply. There is undoubtedly a keener appreciation of any crop, whether it be garden or field, when it is brought within the limits of the demand.

Broccoli this season has been somewhat erratic, some early kinds coming into use later than usual, while later varieties turned in more quickly than usual. Late Queen, or what was supplied to me for that excellent May Broccoli, was all used up in April, which for me was very convenient. Some other winter sorts had turned in, and would have left a breach but for the hasty maturity of the Late Queen. Model has been very good, and is invariably a most reliable hardy Broccoli; so is the old Leamington. Sutton's newer Mayflower has been equally good, and is a very distinct Broccoli with beautiful white heads; but perhaps the most useful of all is Bouquet, another of Messrs. Sutton's introductions. I have grown this now several years, and always with satisfactory results. Unlike other, or, rather, ordinary Broccolis, this gives several smaller heads from one stem, a characteristic implied by the name it bears. It has a good constitution, and is very hardy, and may legitimately be claimed as good for the palace as well as the cottage garden, because of its freedom and the medium size of the heads. It has one fault, however, and that may be found in the colour of the head, which is not so white as demanded in some establishments, that is under natural conditions of growth. If the flower heads are kept carefully protected from the light and sun a clearer colour would naturally result.

In this neighbourhood there has been a general complaint laid against slugs and the Turnip flea in raising, or attempting to raise, plants from seed for the next winter's supply. Repeated dustings of soot and lime, and for the hindrance of slugs a light dressing of powdered salt, has all apparently been of little avail, for the work of destruction has been in progress for some time, and still continues. April sowings fared worse than others made during the present month, presumably for the reason that May, so far, has been a dry month, when slugs cannot carry on their depredations so easily. Earthworms, too, have been so numerous and busy for the same reason, and assisted the slugs very materially by making convenient hiding places for them during the day. They also

pull many seedlings into the ground, and particularly small ones freshly planted.

There is no doubt but that it is a fatal mistake to plant Broccoli on rich and freshly dug ground. Under such treatment they would make a vigorous growth, very pleasant to look upon in the autumn, but presenting a very different aspect by the end of March in the course of ordinary winters. In such as that of 1894-95 it was common to see the hardiest very severely thinned even when planted in poor and firm soil, and as one cannot foresee what the winter prospects may be, it is a better policy to utilise poor rather than strong ground. This applies to the late winter and spring crops; quite a different course can be, and usually is, taken in the matter of autumn and early winter sorts, as these are ready for use and often cleared away before sharp weather sets in, and where accommodation exists a fairly good breadth can be laid in to continue a supply when outdoor growth is held in check by frost more or less severe.

In small gardens where there is a large demand, and late Broccoli must needs follow another early crop, it is a mistake to sow seeds early—say in March, when they have to remain crowded in the seed bed until June, or even July. The end of April and the first fortnight of May is a better time for sowing the late Broccoli, and also that favourite kind Snow's Winter White. Sown at this date they have not to wait long after they have reached a suitable size for planting. There is no better site than an old Strawberry bed, simply cleared and the plants put out by means of an iron bar. As a rule their growth under such treatment is strong, though short-jointed and sturdy, and is better conditioned for the trying ordeal of a severe or even a moderate winter. Some growers take great pains in preparing their plants, first transplanting them temporarily; but by late sowing the necessity for this course is reduced, and quite as good, if not better, returns are obtained by planting direct from the seed bed. The seed should be thinly sown to allow of the plants gaining size and strength without crowding.—W. S., Wilts.

MY NORTHERN GARDEN IN MAY.

OUR second Alfred has written a prose poem on the garden that he loves. Mine is not so extensive, and not in the sunnier South. We have late seasons and revel in our spring flowers when more fortunate friends are enjoying the beauties of early summer bloom.

A long grey old house, with red tiles, facing west, looking up a garden which has a rise of at least 3 feet; the rise is graduated by two small grass terraces, and all the garden is seen to good advantage from the windows. The boundaries on the north are fine old Beeches, just now in their fairest, tenderest dress of green. As summer advances the shade deepens, and with autumn come the brilliant hues of flame-coloured gold. One tree is always a few days in advance of its fellows, and in the autumn this is particularly noticeable, as it assumes its bright dress nearly a week before its brethren.

South and west you find an Ivied wall and trim Yew hedge, still the pride and glory of one old labourer who had a hand in the planting. An Elm tree shuts in the south-west corner. Every scrap of the old house wall is covered with some green thing. A "Gloire" and purple Clematis come first, then Pyrus and Jasmine. Then a Reine Marie Henriette, then Lamarque, and Scarlet Tropaeolum are in close quarters. More Jasmine, and a plant or two of *Echemocarpus*. Then a delicate but highly treasured white Japanese Rose, almost overpowered by her more robust brother, with his lovely rosy pink blooms. Poor old John Hopper comes next; then to prevent the clashing of colours between him and Crimson Rambler is Marie Van Houtte, ever constant with her sweet buds, both the earliest and latest in the garden. A bit of *Ampelopsis* is growing round one nursery window, while the other is encircled by the Ayrshire Ruga huddled on a stand, and of tremendous length. It is the happy home of a pair of sparrows, and the little maiden, the princess of the nursery, looks upon them and the Roses as her very own.

Too near the windows at the north end, but too beautiful to move, is a crimson Chestnut, and we would rather be a little short of light than do away with its fan-like leaves and rosy pyramids of bloom.

On a grass border under the windows had been gay beds of *Polyanthuses*, old-fashioned Tulips, and some rare new Forget-me-nots, the bluest of the blue, and compactest of the compact. Fuchsias and Begonias now take the place of these dead beauties; but we always part with our first spring flowers regretfully. In every corner, nestling among Ferns, are clumps of Wordsworth Poppies. They have, and are still encroaching, and every year we say, Go you must; but every year they look so bright, and weather, wind, and frost, that their day is prolonged. *Corydalis* (the yellow variety) has got a footing, and keeps it too.

Three steps will land you on the lawn. The two *Trifolium* beds in spring are one mass of Harbinger, surrounded by four crescents of Forget-me-not. A long narrow bed passing north and south is given over to Jonquils. Here they flourish literally by thousands, and the double ones too find a home on the south side of the Beeches. Earlier we rejoiced in Daffodils of various sizes and names, from the fairy-like *N. nanus* to the glorious Emperor and the good old-fashioned double.

Just now the Columbines are in their glory, not the Aquilegias of the

nurseryman, but the old-fashioned woodland flowers, so varied in tint, so graceful in form, so prettily set above their delicate greenery. A great clump of Lords and Ladies hide in a snug corner. Did you ever notice how beautiful they are? flower and leaf alike, quite fit for any garden. A bush of white Lilac reveals itself by scent, such as no shop in Bond Street can rival; and across the lawn, just out of the boundary of the Rose domain, is a Sweet Briar bush guarding the Lily patch. The gentle rain to-day will have done its work, and to-morrow we shall have a few sprays of the white bells for our writing table. The pink Pæonies are just bursting, and the Syringa (Philadelphus) will not be far behind, in time this year to deck a bride's table. If it were a hothouse flower what a high value would be set on it; being humble enough for the poor man's garden it is counted of little worth.

The Yew hedge, undisturbed this year by the active schoolboy, is full of nests, and the whole garden is one concert room. The Roses have borne the winter well, and are breaking in every direction. The Rose-trellised walk is one thick tangle of bronze and green and wee buds that give promise of a glorious hereafter. This is only the homely garden of a farmhouse, easily managed with little expense, but a source of endless pleasure to its owner.—THE MISSUS.

SUMMER BEDDING.

(Continued from page 432.)

I REFERRED on page 432 to the arrangement of beds. I will now pass on to the borders, which to my mind are much the prettier if not made too formal. A wide border by the side of a long straight walk may be made to look effective in the following way. A back row of Conifers of various sorts, about 7 or 8 feet high; between each plant a clump of Hollyhocks and tall Michaelmas Daisies, such sorts as *Asters novæ-angliæ rosea*, *n.-a. rubra*, *diffusus pendula*, *Harper Crew*, *patulus*, *paniculatus*, *Lady Trevelyan*, *floribundus*, *Robert Parker* and *polyphyllus*. By planting Hollyhocks and Daisies in one clump you get a continuous block of flowers, for as soon as the former are over the latter begin and keep on till the end of the summer. In the next row, 3 feet from the back, plant another line of Conifers about 3½ feet high, just opposite the Hollyhocks, such as *Retinosporas plumosa*, *plumosa aurea*, *plumosa argentea*, and *plumosa vera*; these can be kept neat and to any desired height with knife and pruning scissors. Clumps of Cannas that grow from 4 to 5 feet high may be placed to come opposite the back Conifers. In the next row, 3 feet distant, put dwarf plants of *Acer Negundo variegata* just opposite the Cannas. These can be pruned back every year to keep them dwarf, and between each of these plant a purple Japanese Maple, or purple-leaved Castor Oil (*Ricinus Gibsoni*). About 18 inches from the Acers have a row of *Sedum spectabilis purpureum*, a foot apart in the row, and at every 4½ feet along this row plant alternately *Hydrangea paniculata* and *Lilium lancifolium roseum*; let the Lilioms come opposite the Acers, and the Hydrangeas opposite the Castor Oils. About 18 inches from the *Sedum* a row of tuberous rooted Begonias may be planted, and 1 foot from this tuberous Begonias again. Now, between these two rows of Begonias, at every 9 feet, place a Fuchsia which has previously been grown up to about 2½ or 3 feet high, with not too many branches up the stem, or it will hide the Begonias too much when looking up or down the border. In the next row, 9 inches from the Begonias, plant Golden Feather, and 6 inches from this a double row of *Ajuga reptans*, to fill up to the Box, tile, or whatever permanent edging is used. This border will be about 12 feet from the Box edging to the centre stems of the back row of Conifers; altogether it would require to be about 14 feet wide. We have such a border at Sandhurst Lodge, on either side of a straight gravel walk leading to the inside kitchen garden, which is bedded every summer, something after the style I have described, and is always greatly admired by visitors. Sometimes the front is done in beds, sometimes in lines, but never two seasons alike.

Mixed borders again are always effective and interesting if they are properly planted. If you can get a long border about 9 feet wide by far the prettiest way is to plant in groups, each kind to occupy a space, say about 5 feet long by 3 wide or so; if a little larger all the better. These borders may be filled principally with hardy plants, but spaces should be left for tender plants and annuals, which must be arranged so that the border shows bloom from one end to the other the whole summer. When planting mixed borders care should be taken not to have two groups of plants together that bloom early and are over for the rest of the season; but against an early flowering group plant one that blooms later, then you will have a continuous border of flowers for a very long season. I use very few stakes in my borders. If a plant can any way be grown without a stake I never use one, as the border looks so very much prettier without them; and I never cut my herbaceous plants down till the end of the season, only keep taking off the dead flower heads down to the first green leaves, as the old stems not only help to strengthen the roots, but keep the neighbouring plants up in rough windy weather.

And now for a word about pot Fuchsias and other plants which are very effective in groups, plunged to the rim of the pot in the grass. This is done at Sandhurst Lodge, and these groups are always greatly admired by visitors. These, to my fancy, should be arranged where a good background of green foliage can be had to set them off to the best advantage. They may be arranged in the following way:—Say a group of all Fuchsias of different colours, and then a large group of mixed plants, such as *Plumbago capensis*, *Plumbago capensis alba*, *Solanum*

jasminoides, *Habrothamnuses elegans*, *coccinea*, and *aurantiaca*, *Swainsonia alba*, *Swainsonia Osborni*, large plants of *Zonal Geraniums*, *Erythrina crista-galli*, *Brugmansia Knighti*, *Begonia Ingrami* and *fuchsoides*, *Cobæa scandens*, *Ivy-leaved Geraniums*, and *Tropæolum Fire King*. The three latter must be trained round stakes, and then allowed to branch out and hang about in a careless manner, with a tall Bamboo or two arranged here and there. A very interesting and effective group may be made somewhere near the mansion with the different sorts of scented-leaved "Geraniums." The flowers of some of these are very pretty, and they are as a rule continuous bloomers. Such sorts may be used as *Rollinson's Unique*, *Prince of Orange*, *Fair Ellen*, *Lady Mary*, *Shottesham Pat*, *Lady Scarborough*, and *quercifolium*.

Perhaps before I go further I might give a list of Fuchsias, which with me have proved to do well outdoors, both in pots and planted out. The single varieties are undoubtedly the freest and most continuous bloomers. Amongst these are *Charming*, *Mr. King*, *Blushing Bride*, *Cannell's Gem*, *Countess of Aberdeen*, *Display*, *Victor Hugo*, *Erecta*, *Novelty*, *Daniel Lambert*, *Dr. Lancaster*, *Rose of Castile*, *Alba coccinea*, *Anrora Superba*, *Mrs. Rundle*, *General Roberts*, and *Rose of Castile Improved*. The best doubles that I know are *Madame Jules Chrétien*, *Edmond About*, *Berliner Kind*, *Dr. Matthews*, *Elizabeth Marshall*, and *Frau Emma Topfer*. These are all good and free flowering sorts, the last-named is a fine bloom but not so free as the foregoing.

All these pot plants should be arranged with an eye to colour, and have sufficient width of green turf between them to enable you to get about easily for mowing, tying, and watering the plants, the rim of the pot being plunged down level to the turf, and a few clinkers or cinders put at the bottom of each hole to insure free drainage. These plants require abundance of water on hot sunny days, and they must also have careful feeding; and here lies the secret of success, for nothing to my mind looks more miserable than a shabby plant placed out on a lawn in a flower pot. My plan of feeding is a very simple one, and is as follows: Two paraffin casks are procured. In one is put a bag containing about two gallons of soot, and in the other cask about a gallon and a half of guano, both are then filled with water, and allowed to stand a day. To three gallons of clear water a half-pint of one or other of these mixtures is used for watering the plants every morning, other supplies of clear water being given during the day. The soot bag will last about a month, but the guano tub will want a few handfuls throwing in every few mornings; before taking the guano water out stir the contents of the tub, and then allow it to settle again. Besides these two stimulants I use very weak cow manure water, which runs into a tank from the cow yard, but my plan is to use all stimulants weak and often, and to keep changing from one to the other.—(Read by Mr. W. TOWNSEND at a meeting of the Reading Gardeners' Association.)

(To be concluded.)

RED SPIDER AND GOOSEBERRIES.

THIS is one of the most troublesome of the gardener's enemies, and in order to combat it successfully action requires to be taken in the early stages of the trees' growth. Our Gooseberries are all cultivated on trellis (cordon system), the length of each trellis being 150 feet, and the height 5 feet. We had a rather severe attack of the red spider, owing, no doubt, to the prevalence of dry weather accompanied almost incessantly with N.E. winds (this being conducive to the well being of the enemy), and which shows signs of spreading to an alarming degree. I applied spidicide with the syringe about once a week, with heavy syringings of clean water two days after each application. I can safely say that it has proved to be efficacious. The trees are now clean and healthy, and growing most luxuriantly, being laden with large quantities of fruit, and the foliage of a beautiful dark green. I have no doubt there are other preparations which would exterminate these insects effectually. I have no interest in recommending spidicide other than that it has done that which the makers claim for it. I have no doubt Mr. Hiam's plan is a good one (page 418), but it would seem to need a microscope and white paper to perceive the insects. Those on our trees were plainly visible with the naked eye.—H. T. MARTIN, *Stoneleigh Abbey Gardens*.

RESPONDING to your invite for information of remedies for the extirpation of that exceedingly troublesome insect *Acarus* (*Tetranychus*) telarius allow me to remark that one of the most efficacious preventives and cures I am cognisant of is a copious syringing with a mixture of flowers of sulphur and petroleum, well incorporated with water at the rate of two wineglassfuls of the oil to a gallon of water, or instead of the sulphur a little softsoap added to the oil, with, say, a pint of boiling water, thoroughly churned together before mixing with the water for use. The softsoap has the effect of causing the oil to intermix more intimately with the water.

It will be readily conceded that it is somewhat difficult to apply the liquid underneath the foliage, which forms the chief resort of the spider, especially during wet weather or when the upper surface of the leaves are covered with dew.

As it is somewhat difficult to apply the liquid on the under surface of the leaves, especially where the branches are trained within a few inches of the ground—a mode generally adopted by exhibition growers—it is necessary to employ something more suitable than the ordinary rosed syringe. I have used an angle-jointed rose syringe for the purpose

also, as infinitely preferable, a hand pump with a sufficient length of rubber hose attached, with which appliance a large number of bushes can be readily dressed in a comparatively short time, especially if an assistant works the pump, and thus leaves the other operator to use the hose with a rose or nozzle attached more freely with one hand, and the other holding up the branches of the trees. The advantages of this are obvious.

I may add that the best period of the day is when the insects are roaming over the dry upper surface of the foliage, as well as beneath. I recommend the insecticide in question as one of the least expensive, as well as most efficacious; otherwise there are several other equally effective remedies, and one of the cheapest, though most difficult to apply on account of its adhesiveness to the implement employed, is ammoniacal liquor or gas water mixed with clear water, but which difficulty may be ameliorated by the addition of a little soft soap, as recommended for the petroleum oil.—W. G.

THE FLOWER GARDENS OF VICTORIA (AUSTRALIA).

(Concluded from page 414.)

TOWARDS the latter end of summer and early autumn the Lilliums are in their best form, and are easily grown. The beautiful Nile Lily grows freely everywhere, and to immense size. Fuchsias are so common as to be rather despised, and embrace many kinds, the little "Baby Fuchsia," as it is called there, growing into quite a tree. Poppies are in endless variety of size, shape, and colour, and these also bloom better the hotter the day, the French varieties, and one we call the Maltese, from the cross seen in the petals, being special favourites. Cacti, crimson, pink, yellow, and white, grow splendidly and to great perfection in the hot weather. Cornflowers of four or five different colours are to be seen in nearly every garden. Eschscholtzias, Dianthus, Pinks, Picotees, Salpiglossis, Godetias, Gardenias, and Heliotropes are splendid bloomers in the summer, and always look showy. Everlasting Flowers grow to great perfection, some of the indigenous wild ones found in the country doing well with a little culture. Hollyhocks grow to a great size, and the flowers are very large; one fine one of a delicate lemon yellow colour looks specially attractive.

From earliest summer the Roses are in bloom, and before Christmas the Rose shows are held, and draw great crowds of exhibitors and enthusiasts. This queen of flowers grows to great perfection, and in a manner that would astonish English growers. I have heard this from competent judges. I cannot remember the names of varieties in such a large class, so can only generalise; but the old favourites, like *Maréchal Niel*, *Cloth of Gold*, *Souvenir de la Malmaison*, *Niphetos*, *Safrano*, *Madame Lambard*, and *Gloire de Dijon* are to be seen in scores of gardens climbing up verandahs, side fences, walls, or on lattices. *La France* luxuriates, and along with *Safrano* is a real marvel to bloom—indeed, one can almost always get *Safrano* flowers. The *Banksias*, white and yellow, are much sought after, making excellent verandah shades and fernery coverings. I have seen the front of a one-story house covered with the blooms of a yellow *Banksia*. The following note is from a letter from Australia I received about fourteen days ago:—"In our garden everything is looking so fresh and green, and quite a lovely mass of blooms of Roses, Asters, Sunflowers (the large and miniature), *Gladioli*, and the lovely light blue *Plumbago*, also a splendid crop of *Gaillardias*." I will ask you to note that this is in the middle of our hottest month (February), and is Nature's response to a recent rain, which has just refreshed the land. Among the later Roses introduced to Melbourne may be mentioned the charming *petite Rose*, *Madame Cecile Brunner*. It is especially in favour for gentlemen's buttonholes, and grows to perfection.

Dahlias of all varieties grow magnificently everywhere, and are universal. The pretty *Cactus* section seems to have become a general favourite, though only comparatively recently introduced. *Sunflowers* raise their tall heads, and the smaller *Miniature* is a prolific bloomer, and makes a garden look gay in the hottest days when other things are hanging out distress signals from the heat. With the autumn gardens are just beginning to lose their beauty, and many of the plants are in seed, or taken out. *Hydrangeas* are growing in most gardens, and bearing immense beads of blossom, blue, lilac, and white and pink; but now we are again saved by a wealth of *Chrysanthemums*. These are grown to great perfection, and are immense favourites; and of hundreds of varieties blooming well on into winter *Pompons* incurved, outcurved *Japanese* are to be found. Everyone grows them, and one gets rather a sickening of the word, for everyone wears them, everyone almost talks *Chrysanthemums*, and shows are the order of the day. Some grown in *Wentworth, N.S.W.*, by a Mr. Higgins always create a sensation. Arriving too late for the big shows in Melbourne these blooms are sent over 300 miles, and exhibited in the florists, and seem to dwarf the first prize ones in the shows. I would like to see some sent to London if it could be done, because they would then speak for themselves. *Chrysanthemum* growing is a mania in Australia.

During the winter months or season, which is generally well on us by the middle of May, gardens are seen at their worst, the bare deciduous trees helping in a large measure in this respect. Cold winds, rain, hail, frosts, and occasionally, in some districts, snow, all make the ground sopping and cold. *Camellias* are now in full flower, and the trees grow

into immense size, even up to 10 feet high. Single and double, and of all colours, the blooms grow to great size and perfection. *Pyrus japonica* does remarkably well late in the winter, while *Bouvardias* are now making a splendid sight; but, as remarked, gardens are looking bare just now.

The end of July sees the days lengthening and the sun's rays warming up, the cold sodden grounds and plants begin to put on some growth, and by the time August is well in Nature seems trying her utmost to make up for past misdeemeanour, and transforming everything. The fruit trees are one mass of blossom, and the bees are busy in swarms over the heavily scented blossoms. Later the green leaves and rapid growth of all spring plants can be detected. *Violets* are in great variety, and almost every small garden has its border or plat of them. *Daffodils*, *Primulas*, *Cowslips*, *Oxlips*, *Primroses*, *Auriculas*, *Ixias*, *Tulips*, and *Crocuses*, all are giving signs of great promise, and many of them flower early.

With September spring is in full tide, and the *Narcissus* family reigns everywhere: *Daffodil* shows are the order of the day, and competition is the means of bringing out beautiful displays of bulbs in full and excellent flower. *Hyacinths* are good, but except in the mountainous or higher grounds seem to lack something, and are not so fine as in England. *Camellias* (early), *Bouvardias* (crimson and white), *Salvias* of three or four sorts are all helping to adorn the gardens. *Wallflowers* bloom luxuriantly, and these flowers and *Mignonette* can be smelt on every humid breath that blows. *Wallflowers* will grow anywhere with us, and well, provided the place be not absolutely cold and wet. *Daisies*, *Marguerites*, early *Calliopsis*, *Cinerarias*, *Myosotis* (notably a large variety whose name I do not know) now remain flowering right on into midsummer. *Asters*, *Lupins*, *Larkspurs*, and *Anemones*, one especially fine scarlet variety doing splendidly, and attracting much notice. The *Cosmos* are all coming into bloom. Melbourne, and indeed Australia, wherever a garden can be obtained, has lately had a craze for the lovely *Cosmos*, and I have seen them often 5 feet high and covered with their beautiful delicate blooms of white, purple, and pink. They require plentiful watering to grow to the above height. *Gaillardias* are extremely hardy, and one can chop them back, and yet with a little watering they bloom persistently throughout the long summer, and sometimes the flowers reach really giant proportions. *Nemophilas*, *Godetias*, *Candy-tuft*, *Sweet William*, and *Lobelia* are now either in full flower or nearly so, and bloom for a long time.

About the shrubs and trees I cannot say much, but some are such well-known ones that I can remember them. *Lanrustinus* is very common, and grows and blossoms splendidly. *Rhododendrons* and *Pittosporums*, the latter bearing blooms of two shades of colour, a cream and a purple, grow into huge trees and hedges, and in springtime the night air is really heavy with their perfume. They are the commonest shrubs found in our gardens. *Abutilons* behave splendidly in our climate, especially in the cooler districts. *Solanums* grow to immense size, and their brilliant fruit makes a lovely contrast to their bright green leaves. The *Indian Shot* or *Canna* is a strong and good grower. *Hakeas*, *Grevilleas*, *Flowering Gums*, one specially fine being *Eucalyptus ficifolia*, bearing crowds of blooms. *Magnolias* bloom in great profusion, while no garden is deemed complete without its *Daphne* plant. *Habrothamnus* and *Salvia* grow into large trees, and are splendid flower bearers. The *Bottle-brush* or *Callistemon* has beautiful singular flowers of scarlet, crimson, and purple. The *Sterculia acerifolia* bears rich masses of vermilion blossoms, like bunches of coral. *Melaleucas* or *Tea Tree*, *Lophostemons*, *Currijongs* are all showy shrubs, and bloom splendidly.

In a country necessitating shade verandahs are to be found on every house, and naturally everyone grows some sort of a creeper on the posts or on wire stretched between them, or on lattices or porches, getting thereby ornament and usefulness in the shape of shade and privacy. Thus one finds *Bignonias*, *Convolvuli*, *Jasmine*, *Honeysuckle*, *Clematis*, *Periwinkle*, *Wistaria*, *Tecomas*, *Grevilleas*, *Banksia*, and all sorts of climbing *Roses*. *Passion Flowers* of the ordinary crimson and edible varieties, the latter a prolific fruit bearer if planted in the right aspect, are common. *Virginia Creeper* of two sorts is a favourite on every brick-walled or cement-covered house.

I must now mention one or two plants which are indigenous to Australia. One is *Sturt's* lovely *Desert Pea*, with its brilliant crimson and black flowers. In a hot dry soil this plant grows to perfection, and one can well imagine the surprise and delight felt by the explorer whose name it bears on his first coming on to a vast plain covered for acres with this glory. Another plant is the *Boronia*. It has the most subtle perfume, and is a native of West Australia, where there are plains covered with it. When in bloom the perfume-laden breezes blowing from over these plains are said to be simply intoxicating.

Now I must stop. My object has been to try and give you the idea that we can grow in and around Melbourne and throughout the colonies of Victoria, and in much of N.S.W., any of the flowers to be found in England, as well as numerous others from different parts of the world, with of course those which are indigenous to the colonies of Australasia. There are many with whose names I am not familiar, and which would take an abler pen than mine to treat of in decent order.—(Read by DR. ERNEST D'OMBRAIN of Melbourne at a recent meeting of the Horticultural Club.)



ROSE SHOW FIXTURES FOR 1897.

- June 7th (Monday).—Cambridge.
 „ 9th (Wednesday).—Chelmsford.
 „ 15th (Tuesday).—Ryde.
 „ 16th (Wednesday).—York.†
 „ 18th (Friday).—Portsmouth (N.R.S.).
 „ 23rd (Wednesday).—Richmond, Surrey.
 „ 24th (Thursday).—Colchester.
 „ 25th (Friday).—Maidstone.
 „ 26th (Saturday).—Windsor and Dorking.
 „ 29th (Tuesday).—Canterbury, Hereford, Sutton, and Westminster (R.H.S.).
 „ 30th (Wednesday).—Croydon, Ealing, Farnham, and Reading.
 July 2nd (Friday).—Crystal Palace (N.R.S.).
 „ 6th (Tuesday).—Diss.
 „ 7th (Wednesday).—Glasgow, Hanley,* Hitchin, Reigate, Leeds,† and Tunbridge Wells.
 „ 8th (Thursday).—Bath, Farningham, Gloucester, Harrow, Newcastle-on-Tyne,† and Woodbridge.
 „ 10th (Saturday).—Manchester.
 „ 13th (Tuesday).—Wolverhampton.†
 „ 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 „ 17th (Saturday).—New Brighton.
 „ 22nd (Thursday).—Halifax and Trentham.
 „ 27th (Tuesday).—Tibshelf.
 „ 28th (Wednesday).—Chester.*
 „ 31st (Saturday).—Liverpool.*

* Shows lasting two days. † Shows lasting three days.

The above are the only dates that have as yet reached me. I shall be glad to insert in the next list any further fixtures that may be sent me, whether of Rose shows or of horticultural exhibitions where Roses form a leading feature.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

FARNINGHAM ROSE SOCIETY.

THE schedule of this Show, which is to be held on July 8th, has been sent to us. It is divided into eight sections, three of them based on the number of Roses (plants) grown. Three classes—namely, thirty-six Roses, eighteen Teas or Noisettes, and nine triplets of the same—are open to nurserymen and all comers who are subscribers. A ladies' section is provided for floral decorations, and the classes, we believe, are usually well filled. Classes are also provided for amateur gardeners and cottagers, not confined to Roses, the object being the improvement of horticulture and floriculture in the district. General Edwardes, C.B., is the Honorary Secretary.

COMMENTS AND IMPRESSIONS.—MANURES.

THE kindly editorial postscript appended to my last notes was encouraging though somewhat too flattering, but it has induced me to attempt another letter in the endeavour to keep the promise I then made to say something about so-called artificial manures and their effects on Roses. Some years ago my attention was called to this subject by a conversation with two rosarian friends, one of whom had been employing guano, and the other bonemeal for their Rose beds. Each was convinced that special advantage had resulted from the use of the particular substance he had tried, and it appeared so clear that conspicuous effects had been produced in comparison with ordinary stable manure that I resolved to try both the manures myself.

An early opportunity was afforded for doing so, as I had a quantity of well-rooted cuttings of many varieties, both Hybrid Perpetuals and Teas, and I thought that by taking a dozen each of about six varieties differing in habit and colour, I should have enough for testing. The varieties selected were La France, Charles Lefebvre, Général Jacqueminot, John Hopper, Gloire de Dijon, and Niphetos, which offered sufficient range in their chief characters for a first experiment. Three beds were formed 12 feet long and 8 feet wide, the soil being a moderately heavy deep loam resting on gravel. These were well dug, and received an ordinary dressing of rather old decomposed stable manure, which was incorporated with the soil as the work proceeded. In each of the beds twenty-four young plants (one year old cuttings) were planted at 2 feet apart—i.e., four of each of the varieties selected, so that they were as uniform as possible. The planting was done in open weather at the end of November, as a matter of personal convenience, and not for any special reason.

To one of the beds a fairly heavy dressing of stable manure, from which all the long portion had been removed, and which had been in a heap for a month, was given, on the surface immediately after planting, with a lighter application in the following spring. Altogether the

amount would be about equal to 20 tons per acre. No. 2 bed received a double dressing of a good bonemeal containing a large per-centage of soluble phosphates, the application being made at the rate of 1 oz. per square yard after planting, and again in March. The third bed had a dressing of an excellent nitrogenous guano (Ichaboe), applied at the rate of 1 oz. per square yard in February. The amount and times of the respective applications were arbitrary—that is, they were not founded upon any definite rule or experiment, except as regards the probability of their becoming available by the plants as growth commenced.

Practically, as regards the bonemeal and the guano, the comparison was being made between the effects of nitrogen as ammonia and phosphoric acid as phosphates, the stable manure being regarded as a mixture possibly containing all the substances required by the Rose, but in uncertain proportions, and tending further by its peculiar constitution to materially affect the soil and roots apart from its chemical constitution altogether. This was really the point I had a desire to investigate, for though stable or farmyard manure was a satisfactory application on the soil I was then dealing with, yet in previous experience on heavier and more adhesive soil it had been observed that the dressings of this manure rendered the surface wet, cold, and more difficult to aerate, with corresponding evil effects upon all Roses, but especially upon those of weak habit. Coolness and moisture are undoubtedly advantageous to the roots of the Rose, especially in a hot dry summer, but in an unfavourable season the effects of a heavy dressing of wet manure are the reverse of beneficial on many soils. The success of my friends with the substances being tried in comparison with the ordinary manure suggested the possibility of determining what constituent was essential, and whether foliage or flowers were most affected by the particular substance.—A MIDLAND ROSARIAN.

INSECT INVASION.

THANKS many to "W." Why he should be so concerned about my alphabeticals I cannot imagine; there is no novelty about them, and they have appeared occasionally, as time and temper allowed, in our journal for the past thirty years and more. There is some charm about a *nom de plume*. All of us would be sorry to miss "D. Deal," or "W. R. Raillem." By-the-by, I have only this year discovered the owner by his few lines on early Rose budding—the lady's brother being a great friend of my own, and had already told me the circumstances, and now I still would sooner see "W. R. Raillem" than his right name, and for the few months or years that I may still be privileged to use the pen the "fanciful" alphabeticals will generally be my signature.

"W." does not say in so many words that ordinary tobacco fumigation persisted in will kill the eggs of aphides. I said in my few lines that I was coming to the opinion that the XL vapouriser had some power over the eggs. I do not think that the general opinion is that ordinary tobacco fumigation can destroy the eggs, for if so, why in a badly infested house were we advised to smoke, and repeat the same in two or three days? Certainly since the aphides on the Chrysanthemums were destroyed by the XL in the autumn I do not think I have seen a green or any coloured aphid in my house. Cicerarias, Pelargoniums, and Roses are all likely to show them, but they are perfectly clean.

What a pity "W." had not been a little more explicit. What does "light periodical fumigation" amount to? Does it mean a gentle dose, such as would not be sufficient to destroy aphides, supposing they were in force? Personally I have little faith in light fumigation. I know friends who smoke their cigars in the greenhouse, I do myself, but not with their notions, that the smoke is good for cleaning the plants. Then seeing I confessed myself an ignoramus, I should have been glad to know what time was allowed between the "periodical" fumigations, and whether the size of the house altered the time. Like the Editor, I have had insect pests sent to me which soon found their way to the fire—that most useful destroyer.

"Some persons appear to be in their glory among insects, which they seem to tend so lovingly," so writes "W." And no wonder. Truly we live under the curse of labour for sin, and a gardener's life is one of continual labour, I grant, but even in the insect world there are our helpers in labour, and it is no wonder if some amongst us, who know their value, who "glory" in them, should "tend them so lovingly." Here, as my experience goes, we may teach gardeners a wrinkle or two if they will only condescend to learn all insects are not pests.

For "W.'s" information I may tell him I am an old learner, getting on in the seventies, and prefer to be my own gardener. I thus do just as I like, and I have no intention of getting "rid of myself;" also, so long as the Editor thinks it worth while to print me, I intend to stick to my "fanciful alphabetical" cognomen. In growing plants, Peaches, and Grapes "without an insect on them," surely "W." does not mean that his periodical fumigation cures red spider. How does he treat them?—Y. B. A. Z.

[It is gratifying to observe not only the firm clear penmanship, but the alertness of our septuagenarian correspondent. The Journal could not have reached his address, more than 100 miles from London, till some time during last Thursday, while the above communication was in our hands on Friday, and the compositors have rarely better "copy" placed before them. We hope the "time and temper" of our old friend are far from being exhausted.]



WEATHER IN LONDON.—Since sending our last impression to the machines, a considerable amount of refreshing and invigorating rain has fallen. Throughout the Temple Show, as well as on Saturday, showers were heavy and frequent. On Sunday evening, and at four o'clock on Tuesday morning, there were thunderstorms accompanied by drenching rains. Wednesday opened dull but fine.

— **WEATHER IN THE NORTH.**—Throughout the last week of May rain fell plentifully in gentle showers, and a genial atmosphere has generally prevailed, although there has occasionally been a recurrence of the cold easterly winds. In every department vegetation has made a great advance.—B. D., *S. Perthshire*.

— **AWARDS AT THE TEMPLE SHOW.**—In the official list of awards at the Temple Show the names of Messrs. Sutton & Sons, Reading; J. Carter & Co., High Holborn; and C. Beckett, gardener to Sir W. G. Pearce, Hungerford, were omitted. Each of these received silver cups for their contributions to the display.

— **EARLY PEAS.**—A correspondent writes:—"You may be interested to note that Eclipse Peas were picked at Evesham on May 31st. From the same bank Eclipse was first picked on May 31st in 1895, and May 21st, 1896. The Peas were sown in December, with Radishes, and had the advantage of being covered with straw till the Radishes were up. No other special culture was given."

— **NEW POTATOES IN ISLE OF WIGHT.**—Mr. James Mackett of Bembridge sent me a few days ago some new Potatoes (Sutton's Ring-leader) which had been grown in the open air without any protection whatever. The sets, nicely speared, were planted on a S.E. border, well sheltered by a high hedge, on the 21st February, and the first Potatoes dug May 10th, the heaviest tuber weighing 4 ozs.—S. HEATON.

— **GARDENING FOR ALL.**—Mr. James Udale, Chief Instructor in Horticulture under the Worcestershire County Council, has sent us a copy of the second edition of his Handbook on Gardening. It is, as its title implies, comprehensive, and the many subjects are of necessity concisely treated, the greatest amount of space being wisely given to the more important. These are dealt with in a manner that cannot fail to be helpful to those who desire scientific and practical information bearing on the cultivation of the soil and the production of serviceable crops, while popular window and garden plants are not overlooked. Lord Cobham, who has evidently a strong desire to see allotment holders improve their position in life by intelligent industry, writes an excellent commendatory introduction, and truly remarks, "Horticulture is a delight to most right-minded persons, including those who are untrained and unscientific; but it cannot be doubted that the more knowledge there is of the mysteries and phenomena of life and growth, the more grasp of the principles upon which all progress and skilled experiment must be founded, the truer and higher will be the pleasure." The Rev. F. R. Lawson contributes an equally excellent preface, one paragraph of which may be cited, and appropriately headed as follows:—

— **THE DELIGHTS OF GARDENING.**—"It is, on every ground, a matter of deep satisfaction that there is a general increase in gardening knowledge and gardening skill. There is in horticulture a charm which enlarges as its students advance in the understanding and the practice of it. It brings delight to the beginner, and a yet deeper satisfaction to the veteran. There is delight in the first crop from our own sowing, in the first fruit from trees of our own grafting, in the maiden blooms of the Rose which, with anxiety, labour, and some loss of blood, one first budded. But better still, the delight of later years, when the man, a learner still, is also a teacher, when the lessons of mistakes have been acquired, and when some parts of God's varied laws of growth are better understood." Here is a lesson to all; and they are many, who are, unfortunately for themselves, "wise in their own conceit," and we give the Rector's significant words as wide a circulation as we can. Worcestershire is fortunate in having such patrons of gardening on its County Council as Lord Cobham and Mr. Lawson, also such a competent teacher of the ancient, useful, and delightful art as Mr. James Udale.

— **LONDON SPARROWS AND BAND MUSIC.**—Undismayed by the daily Monday to Friday performance of the Press Band in the Embankment Gardens, a pair of sparrows have built a nest in the ornamental ironwork of the band stand, immediately over the conductor's head, and within a few feet of his bâton. Here a young family is being reared, with apparently healthy appetites; for the old birds, taking no notice of the performers, even in the loudest passages, nor of the big crowd of listeners surrounding them, come every few minutes to their untidy nest and feed the youngsters.

— **STRAWBERRIES FOR THE JUBILEE.**—At the Floral Hall, Covent Garden Market, there is evidently no belief in the suggestion that there will be a scarcity of Strawberries for the coming Diamond Jubilee. Mr. J. B. Thomas writes from that address: "The first outdoor English fruit was gathered on May 24th, and sold in Covent Garden on the following day, and the reports from the growers indicate that the prospects are one of abundance such as seldom or never before has been experienced on the banks of the Tamar, and not one has been affected by the frosts. In South Hants in few exceptional places we hear of the sad effects of the cold nights, but the fact remains that empties ordered are double the quantity of last year's requirements, and which have been considerably increased since. In fact, before the frosts the quantity of bloom showing up for fruit would have necessitated the importation of labour from the adjoining towns to such an extent that can only be appreciated by those who know the demand for same during the Kent Hop-picking season. After the second week in June contracts for Strawberries can be made from 20 to 30 tons a day."

— **RHODODENDRON KEWENSE.**—In the Rhododendron dell at Kew several large plants of this beautiful Rhododendron are in full flower. At the present time rare, and found only in choice collections, its beauty and distinctiveness will make it one of the most eagerly sought after of all Rhododendrons in the near future. It is a hybrid between *R. Griffithianum* and *R. Hookeri*. In general appearance it resembles *R. Griffithianum* much more strongly than its other parent, though quite distinct from either. The leaves are from 8 to 10 inches in length, by 2½ to 3 inches in width, deep green in colour, and produced in sufficient quantity to hide all the branches. The flowers are usually produced ten or twelve, sometimes more, together in a loose head. The flowers are large, measuring 3 to 4 inches across when fully expanded. The tube is 1½ to 2 inches in length, quarter of an inch wide at the base, and widens rapidly to 1½ inch just below the free portions of the corolla. In some instances the flowers are found almost pure white, in others they are suffused with rose, in all cases they are strongly scented. The plants at Kew are growing on a bank in a somewhat shaded position at the south end of the dell before mentioned. When planting this variety care should be taken not to give it such a position that the sun will catch it first thing in the morning, as when the growths are young they are more tender than those of the *R. catawbiense* or *R. ponticum* hybrids, and the early sun after a night's frost often injures them. Stocks of *R. ponticum* or, better still, *R. catawbiense*, may be used to work this on.—W. D.

— **HORTICULTURE.**—Probably the clearest definition of the word "horticulture" we have met with, says a contemporary, is contained in the following extract:—"Horticulture is more than a mere trade; it is more than a productive industry. Its successful practice is based upon great laws which have been deduced from the natural and physical sciences. Many of these laws may be arrested, modified, or set in motion at will. The horticulturist, as he learns that the control of these laws is largely in his own hands, becomes an enthusiastic student and investigator, and can scarcely fail to develop a love for rural life—a love that is deep and abiding. Horticulture may justly rank as a science as well as an art. Not to speak of the science of the propagation of plants or the science of tillage, the great fundamental principles of evolution are exemplified in horticulture as nowhere else. Over 6000 species of plants are cultivated by the horticulturist, and these have produced almost an infinite number of distinct forms. In these forms, with their wonderful and intricate variations, we can study the laws of genesis, and master minds are rapidly reducing the wealth of facts found in greenhouse, garden, and orchard to the semblance of an orderly, systematic, and progressive science. The influence of natural and artificial selection, the effect of soil, climate, and moisture upon development, the transmission of acquired characters, the formation of new species, are revealed in horticulture as in an open book. Here facts take the place of conjecture, and demonstration is substituted for theory."

— WELL-GROWN CINERARIAS.—Mr. Thomas Weager, Hill Grove Gardens, Abergavenny, sends us a photograph of Cinerarias. The plants were evidently very fine, and we cannot think they are adequately represented in the impression before us. One plant—a close head of bloom—we are informed measured 8 feet 2½ inches in circumference, in which case it must, judging by relative proportions, be in a very large pot indeed. The size is not mentioned, but it is stated that the plants were raised from seeds (Kelway's) sown during the first week of July last. They represent excellent cultivation.

— THE DEVON AND EXETER GARDENERS' ASSOCIATION.—The summer excursions of this Association have been so invariably enjoyable and profitable to the members that the Committee have arranged for the next one to take place on Wednesday, July 14th, the destination being Plymouth. By permission of the Right Hon. the Earl of Mount Edgcumbe, the party will, an hour after arrival at Plymouth, proceed to Mount Edgcumbe, where, under the guidance of Mr. Richards, the head gardener there, the beautiful grounds and gardens of that famous estate will be inspected.—ANDREW HOPE, *Hon. Sec.*

— THE PEAR MIDGE.—It does not appear to be generally known that the abnormally large Pears met with at this season in the bunches or in trusses of bloom are infested with a number of white maggots, and owners sometimes are filled with dismay when I have advised picking and burning every one that can be reached in order to prevent the flies developing and causing mischief in the future. I have not followed up their life history, and would read with interest any remarks respecting them, and no doubt it would be a seasonable subject to others.—J. HIAM. [This paragraph was inadvertently omitted from our last issue.]

— VERONICA HULKEANA.—Although many of the shrubby Veronics will not live out of doors through a severe winter, the protection of a cold frame is sufficient to insure their safety. The little protection required warrants a few of the best a place in most gardens, as they come in nicely during spring to help to furnish the cool greenhouse—some in the capacity of foliage, and others as flowering plants. Of the latter the one under notice is the best. It is a native of New Zealand, and forms a loose-growing shrub about 2½ feet in height. The leaves are oblong, sometimes inclined to be ovate, with serrate margins, and are rather sparingly produced on the branches. The flowers are produced on terminal branched racemes, 8 inches in length; the lowest branches of the raceme are 2 inches in length, and carry about eighteen flowers; as they get nearer the apex they gradually become less, until at the top they are half an inch in length, and carry six flowers. The flowers are quarter of an inch across, and lilac in colour; they begin to open during March, and last from six to eight weeks if in a cool house. To grow them well, cuttings should be rooted in spring and kept growing all through the summer, with frequent stoppings until the end of July; they should then be left, to get the wood ripened for winter. Six or 7-inch pots are large enough to grow good plants in. They should be grown outside until the end of October.—D. K.

— ROYAL METEOROLOGICAL SOCIETY.—The monthly meeting of this Society was held on Wednesday afternoon, the 19th ult., at the rooms of the Royal Astronomical Society, Burlington House, Mr. E. Mawley, F.R.H.S., President, in the chair. Mr. F. Gaster of the Meteorological Office read a paper by himself and Mr. R. H. Scott, F.R.S., on the "Mean Monthly Temperatures of the British Isles." The authors dealt with the means of the daily minimum, average, and maximum temperatures for the various months of the year in the twenty-five years, 1871-95. They pointed out that there is a great difference between the amount of range of temperatures at the coast stations and that recorded inland. The range between January and July amounts to about 16° at coast stations, but to more than 23° at the inland stations. The contrast between the temperature of the air at inland and at coast stations at different times of the year is due to the following causes:—(1) The constant tendency of the sun to heat the surface of the earth; (2) the equally constant tendency of the earth to radiate its heat into space, both of these being modified greatly by the aqueous vapour and the clouds suspended in the atmosphere; (3) the fact that the solid portions of the earth absorb and reflect heat much more rapidly than the water; and (4) that while the ocean to the westward is of enormous size and great depth, the sea to the eastward is, comparatively speaking, limited in area and shallow, and separates the eastern shores of the British Islands from those of continental Europe by a small distance. A paper by Mr. C. V. Bellamy on the "Rainfall of Dominica, West Indies," was also read.

— CHURCHYARD BOTTOM WOOD, HIGHGATE.—We learn that towards the purchase of this wood as a public open space the Middlesex County Council, at a recent meeting, promised to give a sum not exceeding £5000, provided that Parliamentary powers are obtained to enable them to do so. The St. Pancras Vestry has also been approached by a deputation in support of a petition for a grant of £2000 towards the purchase of Churchyard Bottom Wood. A motion to refer the matter to the Parliamentary Committee was unanimously agreed to, and at the same time the Vestry expressed a desire that the wood should be preserved as an open space. We understand that since these meetings the promise of £1000 towards the purchase of this bit of old Middlesex woodland has been made by a lady who does not wish her name published.

— SUN ROSES.—These plants are very delightful, and it is a matter of surprise that they are so seldom seen. It is true the flowers are extremely fugacious, but then they are succeeded by others day after day for a considerable time, so that a good-sized bush is in the mornings of fine days covered with the small saucer-shaped flowers of various shades of pink, red, white, and yellow. The plants like a sunny position and a dry soil, but they should not be allowed to become too dry, as this would shorten the blooming period. They are very readily raised from seed, and a small packet will supply plants enough and to spare. Old plants do not remove satisfactorily. They are hardier than the Rock Cistus and flower earlier.

— SWAINSONIAS.—Different species of Swainsonia, particularly *S. Greyana* and *S. galegifolia*, which are largely grown for cut flowers now, are plants which are greatly dreaded by the stock growers in Australia. Chemical analysis does not show any toxic principle in the plants, and yet when sheep and other animals eat them they acquire a habit for them and will eat nothing else; their brains seem to become affected, they never fatten, and finally die. Sheep addicted to this habit are known as "Indigo eaters," and they separate from the flocks and wander about listlessly. A case is recorded where horses hobbled for the night at a place where Swainsonia was growing were difficult to catch the following morning, their eyes were staring out of their heads, and they pranced about against trees and stumps. Two out of nine died the second day after, and five others had to be left in the camp, for when driven they would suddenly stop, turn round and round for a time, then fall down, rise again and repeat the performance. No experiments as yet give any reason for the complicated effects which this forage has on stock, but there certainly is much testimony to the fact that it causes a sort of madness which induces creatures who feed upon it to attempt to climb trees or commit other eccentricities. Baron Mueller believed that Swainsonia possesses the deleterious properties attributed to it, and he publishes this view in the Transactions of the Royal Society of Victoria.—("Garden and Forest.")

BAMBOOS.

THE Bamboo of commerce, which, I believe, is botanically known as *Arundo donax*, is a grand subject for outdoor decoration. My experience of the plant is as follows:—Three years ago last March I bought a plant, and, as far as my memory serves me, one humble shilling was the medium of exchange. The produce of last summer's growth is twenty-three grand Reeds, averaging 10 feet in height; the tallest is 11 feet 6½ inches to the tip, and more than half were between that and 10 feet.

If it were not ridiculous I should say that the position was unsuitable, that the land is rather too "heavy;" but, on the other hand, it has perfect drainage, and also, as being within 7 feet of a large ditch, into which a small ditch runs, plenty of moisture. The waste water from a tub that is kept full (to soften in the sunshine) for use in frames is turned, the ditch ending at the Bamboo, through the roots of which the water passes.

I do not know the proper cultivation. My plan is, when the first new shoot appears above ground, to cut off all the previous year's growth; this prevents a certain untidy look in the summer, which is the only drawback to this most decorative family of plants. As my first shoot appeared to-day (May 20th), I should suggest that this is a good time to plant. I may further say that the shoots which come up early in the season are nearly as hard, when dry, as those we buy as flower sticks.—Y.

[*Arundo donax* is a strong-growing Reed. In Italy and the South of France the young shoots are eaten as Asparagus, the woody stems used as Vine supports and fishing rods, for which, and other purposes, they are imported to this country. *Bambusa arundinaria* is the common Bamboo, and is used for manifold purposes, including house building, ladder making, furniture, fishing rods, and, when split, into baskets, mats, and screens. *Arundo donax* imparts a tropical appearance to gardens, and the variegated form, *A. d. versicolor*, is regarded by many persons as particularly attractive, but is less hardy than the type.]



CYPRIPEDIUM VILLOSUM AUREUM.

COMPARED with this superb variety, the ordinary types of *C. villosum* are commonplace. In the first place the flowers are larger, they are much more brilliant in colouring, and owing to their greater substance last a good deal longer in good condition. The stems are green instead of purplish, the dorsal sepal has a distinct white margin, the body of the segment being bright golden yellow; petals and lip are both golden yellow externally, the lower part of the former having the usual shining brown tint. It thrives and blooms most profusely under the same conditions as the old *C. villosum*.

COELOGYNE CRISTATA (TRENTHAM VARIETY).

This is still in capital condition, the lovely sprays of pure white blossoms with lemon tinted lip being most useful for sprays and buttonholes now the ordinary varieties of *C. cristata* are over. The pseudo-bulbs are more ovate, not so round as those of the type, and occur at longer intervals upon the wiry rhizome. This necessitates more frequent repotting, or at any rate packing up with compost, as if the growths push far above the compost line they cannot so readily obtain sustenance from it. Otherwise the treatment is the same—a cool, moist, and shady atmosphere and regular moisture at the roots.

ONCIDIUM KRAMERIANUM.

This fine species has been in flower since January, and it is now pushing up fresh flower spikes. The blossoms occur singly in a long succession at the top of a long wiry peduncle that rises from the side of the pseudo-bulb. It is well known for its striking resemblance to a butterfly, the upper sepals taking the place of the antennæ of the insect, the lip and petals that of the wings. The colour is a bright golden yellow, with reddish brown markings. *O. kramerianum* requires plenty of heat and moisture, and a light sunny position to do it well.

The roots are not ambitious in pushing a long way from the centre of growth, consequently a large receptacle is unnecessary for them. It does admirably suspended from the roof on cork blocks, lightly dressed with living sphagnum moss, this being encouraged to grow as much as possible during the summer, and a little of it removed during the resting season. Small shallow pans are also suitable for it if filled nearly to the rim with clean crocks and a little peat and moss placed about the roots. It grows until late in the season, and every endeavour should be made to ripen the growth with the waning sun in autumn. *O. kramerianum* is a widely distributed plant in Central America, and was introduced in 1823.—H. R. R.

LYCASTE SKINNERI.

AN illustration of this beautiful plant, as grown in these gardens, having recently appeared in the pages of the *Journal of Horticulture*, a few notes on the culture of the plants, as practised here, may be of interest to some readers. This is, in my opinion, one of the most desirable of all Orchids, as the plants are of easy culture and require little heat. Our plants are grown in a span-roofed house, which is kept at a temperature of about 60°, with a rise of 10° by sun heat. The plant figured was grown in a 24-sized pot, and carried, when at its best, twenty-five fully expanded flowers, several of which were borne in pairs. It has three pseudo-bulbs, and leaves 2 feet in length. Although the species is very free flowering and lasts for several weeks in perfection, it is detrimental to the plant to leave the blooms on for a lengthy period, as by so doing it materially affects its flowering so well the following season.

The compost we find to suit them admirably consists of a mixture of fibrous peat and sphagnum, with a good sprinkling of silver sand, broken charcoal, and potsherds. The pots should be clean and well drained, copious supplies of water being necessary during the growing season, with an occasional application of weak liquid cow manure. The amount of water must be reduced in winter, although at no time should the plants be allowed to get dry at the roots. The flowers are very variable in colour, from a bluish white to a deep rose colour, those borne on the plant in question being of a bright rose colour, lip white, spotted with crimson. The most suitable time to pot the plants is soon after flowering, when they commence to make new growths, we having just completed ours.—H. T. M., Stoneleigh Abbey.

ORCHIDS AT SUMMERVILLE, DUMFRIES.

FOR some years Mr. James Davidson has been forming a nice collection, and a recent visit showed that his liking for these fascinating plants is being rewarded with considerable results. Newly imported plants are often purchased, and the interest these give when coming into flower for the first time is very great. This year a number of *Odontoglossums* are flowering for the first time, and some good things are appearing among them.

Last year a good form of *Odontoglossum crispum* came into bloom, and this year it is stronger and finer, giving a spike with thirteen flowers. It is of the true Pacho type, and the flower is of excellent form and well coloured. A very good form of *O. cirrhosum* with dark coffee-coloured blotches was also in flower, and an exceptionally fine variety of *O. Ruckerianum*. About 300 *Odontoglossums* are grown in all, other good varieties being a dark form of *O. cordatum*, a fine *O. vexillarium*, and one of *O. triumphans*. Several plants of *Cattleya citrina* were doing well and producing fine flowers. These have flowered for a few years, and show no sign of degeneration. There is also a very fine variety of *C. Mossiæ*, a capital dark-spotted *C. Schilleriana*, *C. Regnelli*, and a good variety of *C. intermedia*, with the lip a rich deep rosy purple. *Cattleya Skinneri* is also doing well.

Many *Cypripediums* are grown, among those in bloom being *niveum*, *Dominianum*, *Dayanum*, *Argus*, and a very dark form of *barbatum nigrum*. Other genera of the natural order are also well represented, and the progress made in a few years is very creditable to Mr. Davidson, who takes a strong interest in his Orchids, and attends personally to many of their requirements. Hybridising has been begun with *Dendrobiums*. The plants look well in general, the pseudo-bulbs being large and firm. Cleanliness and health prevail, ascribed largely to the use of the XL fumigating material.—A. S.

LÆLIA PURPURATA MALFORMED.

I HEREWITH send you a somewhat remarkable malformation in an Orchid, *Lælia purpurata*, which has, as you see, four lips. I thought it might prove interesting. Earlier in the season I had another peculiar deformity in a *L. purpurata*. The sepals and petals were normal, but attached to the base of the column where the lip is usually joined was a thread-like filament about 1½ inch in length, and to the end of this was attached a funnel-shaped structure for what should have been the lip. The colouring of it was the same as in a normal lip.—W. H. STEPHENS, *Prescot House, Stourbridge*.

[The abnormal flower of *Lælia purpurata* sent is just as described by our correspondent. A careful examination of the flower shows that the true labellum and the lateral sepals are almost perfectly normal, though the latter are more pointed than usual, and have not opened to their fullest extent. What we may term the spurious lips have taken the place of the dorsal sepal and the two petals, making four with the true lip. Another peculiarity not mentioned in our correspondent's letter is the fact that the column is quite transformed, and instead of the usual viscid stigma on the under side, and the pollen masses above, the latter are entirely absent, and the former is reproduced facing each of the abnormal segments. It would have been interesting if the pollen from another plant had been placed upon these to see whether the bloom possessed the power of fertilisation. The nectary was perfect, and the tubes could be easily traced to this, so probably it would, though, of course, no one would think of sowing the seed from such a bloom, or trying in any other way to perpetuate such a monstrosity.]

Botanists are fond of working out elaborate theories as to what causes this metamorphosis in Orchid flowers, but as a rule they have to content themselves with rather a vague idea of it. There can be no doubt that it is due in some cases to a physical derangement of the internal parts of the plant, and it would be well within the bounds of possibility to say that in this case the rudimentary parts of four, or at least three, blooms were present, the fact of three perfect stigmas pointing to this. The other parts of the flowers not developing, the whole became fused, as it were, into one, or should we say never became disunited, as they would do normally. But this, of course, is mere conjecture, as it must always be in cases of this description. Doubtless these malformations are sometimes caused by improper development, as, for instance, a badly ripened stem of *Dendrobium*. There is not time in this case for the flowers to form properly, and the advancing fluids push them out as they are, small, crude, and deformed. The best thing to do with a plant that produces this class of flower is to grow it as well as possible in the hope of inducing it to perfect its blossoms another season, but if it persists in pushing the deformities its best place would be on the rubbish heap.]

EXOCHORDA GRANDIFLORA.

AMONGST the many beautiful shrubs which flower in the spring and early summer, this must be accorded a prominent place. It has been known in this country for a considerable period, but is still rarely

blooming, it is surprising that such valuable qualities should remain generally neglected. This *Exochorda* (fig. 94) is diffuse in habit, and occasionally requires a little pruning to keep it in good form; and it can scarcely be surpassed for planting in shrubberies, as it rarely exceeds 9 feet in height, and flowers with great freedom during April



FIG. 94.—EXOCHORDA GRANDIFLORA.

seen even now. This is most unaccountable, as the merits of the shrub are of no ordinary character. When we consider its hardiness, combined with beautiful pure white flowers and a lengthened period of

and May. This charming shrub may be readily increased by layers or suckers, and thrives in ordinary garden soil. Where the ground is damp and cold, planting is best deferred till February or March.

REMEDIES WITH SULPHUR.

SULPHUR was first used in this country as an insecticide and fungicide. It formed an ingredient of nearly every composition advised by the old practitioners as a winter dressing for fruit trees, some laying stress on the use of "black" (sulphur vivum), and others on the employment of the "flowers." Even now the "black" has its advocates on the score of cheapness, less objectionableness to the eye, and for effectiveness, while some have become so accustomed to the "flowers" as to scarcely know of any other form.

Perhaps the "black" really has the most value for horticultural purposes from containing more or less sulphate of iron, and on that account may act more promptly on both insects and fungi than the "flowers," which appear to tell most by the fumes, and in slow degree corrosively by contact with either insects or fungi. But whether by contact or fumes, there is no question of both being destructive of external parasites, such as red spider and surface mould or mildew. True, red spider is only incommoded by the presence of sulphur on leaves when the sun is down or hidden by clouds, but as soon as the weather becomes hot there is a scent in the air that renders the red spider uncomfortable, and it gets "smaller by degrees and beautifully less."

Mildew likewise makes a sort of existence where sulphur is present when the weather is cold, but directly the sun shines powerfully and long it takes its departure. Thus the fumes are essential for banishing red spider and annihilating mildew. In thinking over this fact I have often wondered what effect the quarter million of cwts. of sulphur in the coal consumed in London in a year has on red spider and mildew in the metropolitan district. Certainly not much on red spider, if the defoliation of Limes and Elms be any criterion in a dry season; but I think it does something for mildew to the advantage of the cultivator, and probably other pests may suffer in consequence of the sulphur fumes belched forth by the numberless vertical shafts.

There is another side to this question—namely, its effect on vegetation. I noticed in your columns last year a quotation from an American paper advising the employment of sulphur on land as a preventive of Potato scab. I do not know what sort of scab they have in America, but one form in this country is greatly aggravated by the use of ashes, and the more sulphur in them the worse the tubers seem to be scabbed. Sulphur in drills when sowing Onion seed is said to prevent the maggot. Is it so? I have known grand specimen Heaths poisoned by dusting them with flowers of sulphur for killing mildew, and then thought there was danger in its use; while I have not found any record of sulphur being advantageously used to soil as regards the health of plants or crops.

Then there are the fumes. I have seen Roses injured by the continued use of flowers of sulphur for keeping down mildew; also golden coloured Muscat Grapes turned steel blue by fumes of sulphur emanating from it on hot-water pipes. The foliage of Cucumbers, Melons, Tomatoes, and Vines have been hardened by fumes of sulphur from hot-water pipes, Cucumbers stunted and crooked, and Melons cracked; while Tomatoes have been scorched and scarred by sulphur fumes. Adding the Grapes to the picture, my consternation at the effects of sulphur was complete.

That is the dark side; it is darker when sulphur is burned in any structure both for red spider, mildew, and the plants or crops. There is the bright side—red spider, white fly, and the mildew killed; and the crops saved by the timely and judicious use of sulphur, both on the plants and fumes given off by it in hot-water pipes when heated to between 170° and 200°. Some go farther, and aver that sulphur fumes drive out or prevent the coming in of fungal germs, producing internal diseases in crops. That may be, for they all gain entrance to the plants they infest from without—besides, there is the heat and comparatively drier atmosphere, in which the parasites may not be able to germinate. All this shows a bright side in theory and in practice; but where is the proof? What mean the reserve plants, almost as many in some cases as those set out, for many good casualties? Why all this resource if the sulphur fumes make all safe? The germs seem to defy the sulphur fumes, and make such havoc as to render a strong reserve imperative; therefore we may dismiss this phase as chimerical, and are left in the old slough of uncertainty and bewilderment.

The most, therefore, that can be said for sulphur is that of its being useful for killing certain pests, and at the same time more or less inimical to vegetable life in whatever form applied; whether to the roots or tops of plants, its action is to some extent detrimental. This property sulphur has, in common with many other preventive and repressive articles, and though it may be difficult to otherwise act, it is time that attention be given to such substances as would at the same time profit the plant—cleansing, refreshing, and invigorating it, as does the rain.

Sulphur is applied in two ways—insoluble and soluble, simple or compound. There is—1, The flowers of sulphur, and this is dusted on. A bellows apparatus is best for applying it, and the less the better, for it is not the quantity but the method of administration that effects the object in view, and remember that prevention is better than cure, therefore use the sulphur betimes, and repeat as necessary for the destruction of mildew.

2, The liquid application consists in forming either black sulphur or the flowers of sulphur into a paste with skim milk, using 2 ozs. of sulphur to a 4-gallon watering can of soft water, and keep it mixed by alternating syringing into the vessel and on the infested plants. This also is to be repeated as required for mildew.

3, Sulphide made by slacking 1 lb. of quicklime in a copper, forming

a thin whitewash with a gallon of water, then add 1 lb. flowers of sulphur, mix thoroughly, and boil a quarter of an hour, keeping it stirred all the time. Let it settle and cool, then pour off the liquor, bottle, and keep it well corked in a dark place. Use 1 pint to 12 gallons of water, or a quarter of a pint to 3 gallons. This is for mildew, and if used on Vines must be syringed off in a quarter of an hour. If for insects or mites, either red spider or gall mites, add 2 ozs. of softsoap to each gallon, thoroughly dissolving before adding the bisulphide of calcium. The sulphide has an unpleasant smell, and discolours paint, therefore discrimination must be exercised in its use, but both pass off.

4, Sulphur fumes for mildew, red spider, and white fly are had by forming flowers of sulphur into a cream with skim milk, and applying with a brush to the hot-water pipes heated to 160° or more and the house closed, keeping the pipes hot about an hour whilst and after the mixture is applied, then allow the heat to fall to the ordinary temperature.

Now remember that if sulphur fumes—a sort of sulphurous gas—are effective against mildew, red spider, and white fly they require care, for when the pipes are highly heated, and the fumes are long continued, there is danger of the foliage and the fruit being hardened so as not to develop well afterwards, Grapes often being rusted or discoloured, and the effect is similar on other fruits; at least, such has been the experience of—LUCIFER.

CYTISUS AND GENISTAS.

As several of our most beautiful hardy flowering shrubs are included in one or other of these genera it may not be out of place to draw attention to a few of the best for general garden work. In the "Kew Hand List of Trees and Shrubs" thirteen good species of Genistas and fifteen of Cytisuses are recorded, together with a selection of the most distinct varieties of those species. All are to be found in the collection of leguminous plants near the pagoda at Kew, whole beds being made up of those sorts which are most suitable for extensive planting.

CYTISUSES.

The earliest to flower of this genus is *C. biflorus*, a yellow flowered Eastern European species. The flowers are usually produced in pairs (sometimes, however, in groups of three or four) all along the previous year's growth. In mild weather the first flowers are produced early in April. To be successful with this it is necessary to renew the stock from seeds every four or five years, as the plants often deteriorate after that length of time.

Closely following this comes *C. præcox*, a well-known hybrid with sulphur coloured flowers. It is a hybrid between *C. albus* and *C. purgans*, and combines the good qualities of both. Besides being reckoned as one of the best Cytisus, this can also be classed as one of the very best spring flowering shrubs. A compact growing species is *C. purgans* with its deep yellow flowers. At Kew it forms bushes 1½ to 2 feet in height by the same in width. It commences to flower about the end of April. *C. albus*, like the preceding, is a European plant. It is, however, a taller grower with a freer and more graceful habit, and produces pure white flowers in great profusion.

C. scoparius is one of the handsomest of our native shrubs, and can be grown in almost any soil or situation. It, however, well repays a little extra care, as it produces a wealth of rich yellow flowers excelled by no other shrub. The variety *C. scoparius Andreanus*, which has the two wing petals of a rich brown colour, is now well known, and needs little recommendation, as when once seen in flower it is always remembered. If seeds of this are sown about 30 per cent. will be found to come true. *C. scoparius* var. *pendula* is a fine variety, but rather scarce. The flowers are larger than those of the type, and produced on pendent branches. There is also a variety with cream coloured flowers known as "Moonlight Broom" which is well worth growing.

C. purpureus is interesting if only on account of its flowers differing so widely in colour from any other species. It is, however, a very good flowering plant. Growing about 15 inches in height, and having pendulous branches it makes a good plant for growing on rockwork. The graceful hanging branches looking particularly fine when wreathed with rosy purple flowers and light green foliage. It is a native of Eastern Europe. *C. Ardoini* is a charming plant, but little known. It is a native of the Maritime Alps, and grows only a few inches in height. The flowers are very freely produced, and bright yellow in colour. It looks at its best when growing on a rockery.

C. Kewensis is a beautiful hybrid between *C. Ardoini* and *C. albus*. It is a prostrate grower, and will make a fine plant for rockeries. The flowers are cream coloured, and very freely produced. They open early in May. *C. nigricans* flowers about the end of June. The blooms are produced on upright terminal racemes 6 to 8 inches in length on present season's growth. The leaves are dark green, much darker than in any other species. Altogether this is a very distinct and interesting plant. It should be cut back well when young, otherwise it makes a leggy plant.

GENISTAS.

For all practical purposes one name would do for the two genera, very little difference existing. The most noticeable variation is that in the Cytisus the leaves are usually ternate, while those of the Genista are simple. Of the Genistas the following are the best:—

G. æthnensis from Sicily is a tall-growing species, attaining a height

of 12 to 15 feet. For grace of habit this cannot be excelled by any other. The branches are long, thin, and pendulous, usually destitute of leaves, but during July literally covered with bright golden flowers. *G. virgata*, which also attains a height of 12 to 14 feet, and a width equalling the height, is an upright growing species from Madeira. It does well in sandy soil, and always flowers freely. It is one of the best.

G. cinerea is one of the latest to flower. It makes a bush 3 to 4 feet high, with long thin branches. The flowers are yellow, and produced late in July. *G. hispanica* forms a dense bush about 2 feet high and 2 to 3 feet in diameter each way. The growths are short and spiny, the flowers deep yellow, and produced in short upright racemes from the points of the young growths about the beginning of June. So freely does this species flower that when fully expanded little or no growth is to be seen. It is a native of South-west Europe. *G. sagittalis* is a dwarf-growing, free-flowering species. It is a very interesting plant, differing from any of the other *Genistas* by the membranous margins of the stems. The flowers are produced on upright terminal racemes from the current season's growth. They are deep yellow in colour. When in flower the plant does not exceed 8 inches in height, consequently it is a good plant for rockwork, or for a carpet to a bed of taller plants. *G. pilosa* and *G. tinctoria* are both good flowering species, and well worth growing. A prostrate form of *G. tinctoria*, having double flowers, is very pretty, and ought to be found in every garden.

To grow these plants well they should be cut back (after flowering in the case of those which flower on old wood, and in spring in the case of those which flower on young wood) for the first two or three years, so as to get a good foundation for the plant. A stock of young plants should be raised every few years to replace exhausted ones. It is best to propagate all the species from seeds and all the varieties from cuttings, as they do much better from cuttings or seeds than when grafted. Cuttings root best if put into a cold frame in sandy soil in August and kept close all through the winter. They will then be found to be rooted about the end of March.

If possible they should be planted in their permanent quarters when a year old, big plants moving badly. If there is plenty of room at disposal it is advisable to grow all the best sorts in 5-inch pots until planted out for good. When planting care should be taken to make the soil firm round the collars, otherwise the least wind blows them about. All growths should be kept pinched back the first year to a few buds in order to obtain a good foundation.—W. D.

RAISING SPRING-FLOWERING PLANTS.

THE cultivator must always be looking forward. A good display of bloom in spring is only secured by sowing at a suitable time, so that the plants may have time to grow to a useful size, and become strengthened before activity ceases for the season. Plants raised late are and frequently remain weakly, seldom flowering well. There is also the probability of losing them in the winter, especially in unsuitable soils and climates. These are, therefore, strong grounds for not deferring the work. In addition favourable germination is obtained with less attention, and a sufficiently bushy with a sturdy habit is developed, while roots of a fibrous character are more abundantly produced. It follows from the successful carrying out of these preliminaries that there will be a greater certainty of ultimate success.

The preparation of the ground for sowing the seed should be effective. Rich soil is not requisite, though it ought not to be poor and shallow. If moderately fertile, moist, and partially shaded it will be suitable. Dig it well over, pulverising the whole to a fine tilth. A friable surface being secured the seed may be sown, but in dry weather it is preferable to apply water with a roset can before sowing, so that suitable moisture, so essential to germination, may be present. It is chiefly necessary to apply water when the soil is comparatively dry to a considerable depth, also in the prospect of continued dry weather. Sowing the seed first and watering immediately afterwards is not a good method as a rule. The advantage of watering prior to sowing is that the moisture applied is retained by the layers of dry soil used for covering the seed. A little shade in the hottest weather may be given, which frequently prevents the necessity of giving water until the seed germinates.

Seeds which may be sown now are Wallflowers, Primroses, Polyanthuses, Forget-me-nots, Pansies, and Violas. The first three named need the longest growing period, and should be sown as soon as possible, so that good plants may be ready by the autumn. The method of sowing may be broadcast; there is no special advantage in sowing in drills. The young plants in all cases are improved by transplanting unless they happen to be sown so thinly that the young plants do not touch; but this can rarely be the case without the disadvantage of utilising more ground than is absolutely essential. Therefore, sow liberally, though not lavishly and thickly; but transplant when the seedlings are large enough to handle readily.

The middle or end of July is a suitable period to transplant Wallflowers, Primroses, and Polyanthuses. The two latter, of course, are only small when ready for transplanting. They may be placed out with a dibbler or trowel on a plot of ground made fine and smooth on the north side of a wall or hedge. If deficient in humic matter add a little leaf soil or manure. Give the seedlings a space of about 3 inches from each other. Keep watered in dry weather until established, after which little will be needed.

Wallflowers, if transplanted in dry weather, are best placed out in drills, watering each row of plants as they are inserted. First prepare the ground by digging and manuring. Do not apply manure too freely.

Cut a straight, shallow trench with the spade. Insert the plants along it with their roots spread out at the bottom, covering them with a layer of soil. Give a soaking of water, then fill in the remainder of soil, proceeding to take out and plant another trench in the same way about 5 or 6 inches from the first. The plants may be 4 inches asunder. The advantages of this method in dry weather are very obvious. The plants appreciate it by rapidly taking hold of the soil without repeated waterings. When the soil and weather are moist the planting may, perhaps, be more expeditiously done with the trowel.

Forget-me-nots, if sown thinly in moist fertile soil, in any shady position, do not need transplanting. In autumn they can be lifted and planted direct to the position wanted. Pansies and Violas may be sown in drills or broadcast early in July. Should the seedlings come up thickly early thinning may be resorted to, pricking out the surplus seedlings. This will afford the whole of them the means of strengthening and becoming suitable sized plants for transference to a permanent position in autumn. Fairly strong plants winter well and bloom freely the following season.—E. D. S.

SPRING BEDDING AT EATON HALL.

THE gorgeous display of spring bedding at this princely establishment of His Grace the Duke of Westminster has this year been on a magnificent scale, and beautiful beyond description. I recently had the pleasure of making a tour of the gardens, where the effect of a master hand is everywhere visible, not in any one department alone, but in all departments, from the beautiful Orchid houses to the vegetable quarters.

But it was the spring bedding I went specially to see and of which I wish to speak here. What struck me very forcibly was the limited variety of plants that Mr. Barnes had employed to secure such a beautiful display, for single Wallflowers in separate shades and late-flowering Tulips in distinct varieties contributed chiefly in making the effect. Wallflowers appear to have done well everywhere this spring, but here they were exceptionally good, the different sorts being Dickson's Golden Beauty, Selected Blood Red, Belvoir Castle, Primrose Dame, and Ruby Gem, the latter being a comparatively new variety which is sure to be more extensively grown when better known. Its beautiful rich ruby-coloured flowers contrast nicely with the yellow shades. Of Tulips such varieties as elegans Picotee or Maiden's Blush, Golden Eagle, Bouton d'Or, Gesneriana major, Blushing Bride, and retroflexa, were used abundantly, the general favourite, however, being the first-named variety.

Aubrietias græca, Leichtlini, and purpurea, together with Primula cortusoides, played a minor part in the way of edgings, each being very effective in its way. Upon the occasion of the recent visit of their Royal Highnesses the Prince and Princess of Wales to Eaton, I understand they took particular notice of the spring bedding generally, but made special mention of the Wallflowers and Tulips, and admired the method adopted to secure such beautiful effects.

In passing hurriedly through the houses, I could not help stopping to look at the splendid collection of pot Carnations, numbering about 5000, almost every plant being thickly set with bloom buds, but none yet showing colour, save an odd plant of the beautiful yellow Miss A. Campbell. Mr. Barnes anticipates these will be at their best from the middle to the end of June, at which time the Jubilee rejoicings will be in full swing, when such flowers will be largely in demand for decorative purposes.—GEORGE PAXTON.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

ANNIVERSARY DINNER.

MEMBERS, friends, and patrons of this Institution met at the Whitehall Rooms, Hotel Metropole, on the evening of the 26th ult., to celebrate the fifty-eighth anniversary festival. The chair was taken by Lord Rothschild, who was supported by Sir Trevor Lawrence, Bart., Lord Wandsworth, Rev. W. Wilks, M.A., and H. J. Veitch, Esq. Included in the assembly were Messrs. G. A. Dickson, P. Crowley, N. Sherwood, W. H. Protheroe, G. F. Morris, Algernon Gilliatt, C. Czarnikow, N. L. Cohen, W. Nutting, J. Laing, H. J. Cutbush, J. H. Veitch, G. Banyard, G. Monroe, Geo. Cutbush, R. Sydenham, R. M. Hogg, S. M. Segar, F. Lane, W. Icton, J. Jeffries, H. Turner, Geo. May, P. E. Kay, W. Poupert, T. Rochford, Geo. Paul, Jas. O'Brien, J. Godseff, A. W. G. Weeks, T. F. Rivers, G. Gordon, G. Wythes, N. F. Barnes, P. Blair, J. Douglas, and Jas. Hudson.

After the health of her Most Gracious Majesty the Queen had been proposed by the Chairman, and drunk with musical honours, followed by that of their Royal Highnesses the Prince and Princess of Wales, with the rest of the Royal Family, Lord Rothschild rose, amid cheering, to propose the toast of the evening—"Prosperity to the Gardeners' Royal Benevolent Institution," and in course of his brief speech said, "I have been told that quite lately, on an occasion analogous to the present one, he who proposed the toast of the evening began his speech by excusing himself for his appearance there, and by reminding those who were trying to listen to him, that they well knew of his dislike to public dinners. Now I shall not tell you that I dislike the dinner, nor do I dislike the Gardeners' Royal Benevolent Institution (cheers), and I would ask those who, like myself, receive pleasure from their gardens and their flowers who are present this evening,

to help the Treasurer, Mr. Veitch, by their subscriptions, not only to pay annuities to old gardeners, but also to the widows of gardeners. This Society is co-existent with the reign of her Majesty the Queen, so that we might be celebrating its Diamond Jubilee (cheers). If those who are present here will cast their memories back they will not fail to recognise that during the last sixty years horticulture has made tremendous strides. The extending of the Empire, the steamship, and the telegraph have all in their way helped us to get plants from all parts of the world. We have the beautiful Water Lily, *Victoria regia*, named after Her Majesty, and in the Show which has to-day opened in the Temple Gardens there is a lovely Orchid, which bears the name of the Princess of Wales, and there are many others, the presence of which we owe to the last sixty years. No doubt when our successors meet here sixty years hence they will gloat over the strides made and the plants introduced during that time as we do now, and I hope they will be able to look back on the last sixty years with as much pleasure and pride as we can to-night (cheers). Gentlemen, I will conclude by asking you to drink with me to the prosperity of the Gardeners' Royal Benevolent Institution, coupling with it the name of the Treasurer, Mr. Harry J. Veitch."

Mr. Veitch in replying heartily thanked Lord Rothschild for the honour he had conferred on them by his presence on that occasion, adding that they were all aware of his Lordship's fondness of gardening, and his advocacy for the Institution. He did not propose wearying them with details, as information would be gladly given to anyone who care to have. They had, however, at the beginning of this year 161 pensioners, the largest number they had had at any one time, half of which were men, and half women. Two of these have passed away since the election, both residing in the same county, and he (Mr. Veitch) felt sure that it would be a comfort to those present to know that the declining years of their lives were made happy in the knowledge that not only were they provided for, but also the widows they left behind them.

Up to 1885 they had paid £16 a year to men, and £12 to women, but then the amounts had been increased to £20 for men and £16 for women. The sum of £3000 per annum was required to carry on the work. The Secretary's salary and office expenses were practically the only cost they had, as they had no expensive buildings to maintain and keep in repair. Since the Institution was inaugurated £71,000 had been paid. Sometimes the executive exercised its power in making special grants, and not long ago they received a letter from an old woman whose husband's only means of existence for years had been the annual £20 received from the Institution, begging for a little further help so that the parish would not have to bury her husband. He, Mr. Veitch, felt sure that those present would agree with the action of the Committee in sending her £5.

They have a great many applications for relief, some of whom have been trying for four or five years, and next year they will have many more. In drawing comparison between the year 1851, when Her Majesty became patron of the Institution, the Treasurer stated that in 1851 there were thirty-five pensioners; this year there are 161. Then fifteen candidates were elected against fifty-one this year, and the highest number of votes then was 480; this year the highest number is over 3000. In 1851 the amount paid in pensions was £512, against the sum of over £3000 now paid. At the time he had chosen the invested funds were £2250, now they are £26700. The Committee, continued Mr. Veitch, had decided to celebrate the Diamond Jubilee by raising what is called the Victorian Era Fund, by the aid of which they proposed sending the sum of £5 to each unsuccessful candidate. They asked for the sum of £8000, which would be invested, and the interest devoted to giving temporary relief to unsuccessful candidates who have subscribed to the Institution, and would receive assistance according to the amount they had paid in.

Mr. Veitch reminded them that the fund remained open till the end of the year, and though he well knew that Jubilee claims affected everyone, yet he had hoped that the amount would be raised. He could not close without reference to two friends of the Institution who had passed away since the last anniversary dinner. One (the late Mr. James Webber) an able member of the Committee, and to whose good management much of their success was due; the other was his dear friend Dr. Hogg, a man who was ever ready to help a worthy cause. The late Doctor was one of the Trustees, and he was pleased to tell them that in his stead the Hon. Walter Rothschild, son of the Chairman, had kindly consented to act. The family had long been connected with these functions, and in 1884, when Mr. Leopold Rothschild occupied the chair, they had a record subscription list of £3400. He thanked his Lordship again for his presence, and hoped in honour of it this evening would be a record one for the Institution. (Loud cheers.)

Mr. G. A. Dickson gave the toast of "Gardening," and in doing so spoke of the occupation as one which gave pleasure to all, rich and poor alike. He further referred to the strides that had been made during the reign of Her Majesty, evidence of which could be seen in the show in the Temple Gardens. The Royal Horticultural Society, said Mr. Dickson, had had its ups and downs, and now he was glad to say it was up. Gardeners also had their ups and downs, and though "Hope deferred maketh the heart sick," they are a class of men endowed with patience, and always do what they can to help themselves and those about them. He would couple with the toast the name of Sir Trevor Lawrence, and he knew of no one more capable of acknowledging it, being, as they knew, a true patron of gardening and President of the Royal Horticultural Society.

Sir Trevor, in reply, said he had been connected with gardening all his life, and remembered as a boy knowing the names of many plants,

and when he took visitors round his mother's garden he thought he knew a great deal on account of this, but since he has found that he knew very little. He had also had some experience in gardening, and remembered going into the valleys in India and bringing home some branches covered with *Saccolabium*—but, alas! the goat of a neighbour came and eat them. We owe, continued Sir Trevor, a debt to gardeners, and a great one, as we ask them to cultivate plants from all parts of the world, and though the burden is heavy it is one which they discharge well. In no country in the world has more interest and intelligence been brought to bear on horticulture, with the result that our country smiles like a garden. In concluding his speech Sir Trevor asked those present to drink the health of the Chairman, adding a few remarks on the interest which he (Lord Rothschild) and other members of the noted family took in all things appertaining to gardening.

Lord Rothschild thanked those present for the kind and hearty manner in which they had received the toast, and congratulated them on the subscription list, which he was pleased to see amounted to over £5000 (cheers).

Mr. G. J. Ingram then read out the names of the chief subscribers, which included Lord Rothschild (Chairman), £50; Messrs. Rothschild and Son, £210; H. J. Veitch, £250; Jas. Veitch & Sons, £250; J. G. Veitch, £250; J. H. Veitch, £250; N. Sherwood, £500; P. Crowley, £15 15s.; W. E. Gumb'eton, £52 10s.; T. W. Webley, £26 5s.; J. Sweet, £25; J. Rochford, £25; Cecil Rhodes, £25; Arthur Sutton, £100; H. Low & Co., £52 10s.; A. Waterer, £40; W. Robinson, £52 10s.; G. Bunyard & Co., £10 10s.; R. M. Hogg, £20; Lord Wandsworth, £20; J. C. Geiseler, £12 12s.; J. Jennings, £92 18s.; W. Iceton, £11 11s.; Duke of Westminster, £100; Baron Schröder, £200; Geo. Monro, £100; collected at Mr. Monro's table, £29 8s.; C. Czarnikow, £100; Thames Bank Iron Co., £21; Protheroe & Morris, £21; Wills & Segar, £10 10s.; G. H. Richards, £10 10s.; Worcester Auxiliary, £68; Wolverhampton Auxiliary, £50; J. Weeks & Co., £10 10s.; Sir T. Lawrence, £10 10s.; F. Debenham, £10 10s.; W. Farr, £12 12s.; W. Howe, £10 10s.; F. Sander, £15 15s.; Bailey Wadds, £35; F. Harris, £14 14s.; W. J. Stacey, £12; Exeter Auxiliary, £8 8s.; G. Burt, £12; Miss Parker, £5; J. Herrett, £21; with numerous other sums already acknowledged.

The health of the Secretary was proposed by Sir Trevor Lawrence, to which Mr. G. J. Ingram made an appropriate response. Music, instrumental and vocal, was supplied under the direction of Mr. George Ashton.

THE PEAR-GALL GNAT.

OF all the destructive enemies of the Pear this is the most speedy and certain, as well as singularly disastrous. Happily it is but local in this country, and mainly has home in the south-western counties of England. It, however, may at times be found in places over a wide extent of country, and appears to be unusually prevalent this season.

The Pear midge, or Pear-gall gnat (*Diplosis pyrivora*, Riley), is decidedly British, the well-known *Sciara pyri* of older times, and of recent *Diplosis nigra*. It was first noticed in Connecticut, United States of America, about 1877, hence must have been an introduction from the mother country, as it has been known in England for centuries. From Connecticut it spread into a number of neighbouring States, and has become in many localities the most destructive enemy of the Pear. Thus, whether at home or abroad, the British Pear-gall gnat maintains its thoroughly national characteristics, and acts in a certain business-like manner; yet has its likes and dislikes, for both in this country and elsewhere it prefers the roundish or Doyenné-shaped to the pyriform fruited varieties of Pear, and is more prevalent in valleys than on hills.

The effect of an attack on Pears by the Pear midge is to produce an abnormal swelling of the young fruits, causing them to have an ill-shapen appearance. This, however, does not always follow, for the affected fruits sometimes swell evenly. One of such Pears is shown in the illustration, fig. 95, at A, natural size. The observant cultivator notices the rapid swelling of such fruit, and unable to account for the speedy growth, rightly attributes it to an alien cause. This leads to examination, and on cutting an affected Pear in half longitudinally, it is found black at core, and in the cavity or gall there formed are seen small whitish maggots (B at a). These and the condition of the fruit convince the examiner of the destructive nature of the pest, and while some know, others desire information respecting its life-history, with mode of prevention and remedy.

The Pear-gall gnat is a small two-winged fly, intermediate in form between a midge and a gnat—that is, the wings resemble a midge, and the body and legs a gnat. Its wings are blackish, so is the frontal part of the body, but the abdomen is paler or slate coloured, altogether a pretty little fly. The female possesses an ovipositor. Eggs white, just or scarcely visible. Larva at first whitish, soon turning orange or reddish; length one-sixth of an inch when full grown, then yellow in colour, with a brown, horny breastbone on the under side just behind the head. The body tapers towards both ends, most pointed in front, with segments well defined, and when removed from the infested fruit moves about rapidly, banding quite double by drawing the tail forward until it touches the head, and then jerking or springing upward and outward several inches at a time. Pupa yellowish brown, with darker markings; legs folded under the body.

The Pear-gall gnats appear in the early spring, commonly before the flowers of the Pear trees open, and remain about ten days. After pairing the female deposits her eggs inside the blossom envelope when the Pear flower has opened sufficiently for the insertion of her long ovipositor. The eggs are placed at the base of the blossom, and sometimes in the

neck of the ovary, and in three or four days the eggs hatch into tiny maggots in the ovary of the embryo fruit, where they feed upon the growing tissues, which, by the constant gnawing and rasping and irritation, incites undue growth of tissue, and this being outward from the exciting cause a gall is the consequence. The effect is to destroy the core and ovules, and the maggots continue until full-fed. This takes place early in June in forward seasons, when decay follows, and the infested fruit either falls or cracks and the maggots emerge, dropping to the ground. They enter the soil an inch or two, and after resting awhile make oval cocoons of silken threads mixed with particles of earth. In these cocoons they remain quite content, and apparently unchanged, until the Pear blossom buds commence swelling, so timing the entrance on the pupæ state, which takes about a month, that they will appear in perfect form—male and female—by the time the Pear blossoms are in good colour, and have nothing to do but await the expansion of the petals for inserting the eggs. These are seldom less than a dozen, and often many more in number, which means a corresponding number of maggots, so that there is no wonder they make such speedy work of the Pears.

The only stages at which the Pear-gall gnat can well be proceeded against are—1, When the flies appear. The practice of catching them on strips of tin about a foot long and 3 inches wide, smeared on both sides with a substance formed of resin and sweet oil melted together, is very old and excellent, especially for choice varieties of Pears, as such trees are low, and the tin traps—shining like gold—can be affixed on a level with or just above or outside the blossoms. The traps must be in position just before the flowers unfold, continuing for about a fortnight.

Another plan is to spray the trees just before the blossoms open with soluble petroleum, again when the blossom is well out, and a third time after the petals fall. The soluble petroleum does not affect the setting, but care must be taken to apply the second dressing before the pollen cases burst. It is prudent to first try the effect of the preparation on a few cut sprays placed in water, using an atomiser, and note the effects. Such "fine" smelling substances as formalin and spidacide are almost certain to drive away such pests as the one under consideration, and have the advantage of being safe to use. They are mentioned for experiment.

2, As soon as the Pear blossom has set, or in the earliest larval stage of the insect, promptly use an insecticide when the petals drop and get it into the eye of the fruit. This will cure the maggots, but not the Pears, for when their ovules are damaged or destroyed the flesh is of very little use.

3, While the maggots are in the fruit, the removal of the affected Pears and burning them never fails. It is the catch 'em and kill 'em practice, too slow for adoption on a large scale, but practicable and serviceable in the case of small trees in gardens; but fruit tree pests will never be banished until the neglected orchards are taken in hand by competent pathologists.

4, When the larvæ have left the fruit, which takes place about the middle of June, later in backward seasons, supply a dressing of best quality kainit—10 cwt. per acre, 7 lbs. per rod, or 4 ozs. (rather less) per square yard just after rain. The salt will be dissolved by the soil moisture, and the solution coming into contact with larvæ destroys them. In the case of cultivated land the kainit may be lightly pointed in.

The most hateful thing to pests is good cultural methods that make for their disturbance and eradication. But when the orchard so treated adjoins another that knows neither soil cultivation nor essential top-management all the labour will be in vain, as the Pear-gall gnats are bound to find their way from the neglected to the cultivated trees.—G. ABBEY.

ROYAL NATIONAL TULIP SOCIETY.

NORTHERN SECTION.

THE annual exhibition of this Society was held at the Free Library, Middleton, near Manchester, on Wednesday, May 26th. The date fixed did not suit several of the northern growers particularly well, but it enabled some of the early growers, among whom may be named the Rev. F. D. Horner and Mr. Haynes, who are usually unable to be present, to exhibit. Considering the weather we have had the flowers shown were of excellent quality, particularly in the feathered classes. Other notable features of the show were the excellent seedlings, mostly breeders, shown by the Rev. F. D. Horner, and a collection of rectified seedlings exhibited by Mr. Jas. Thurstan of Cannock. Mr. Horner's breeders showed that he had effected great improvements in form and purity, and his feathered Charm, and Miranda, and flamed Magpie, all byblœmens, were very promising flowers. Mr. Thurstan's seedlings were of all three classes, and showed that he has obtained many new varieties of great refinement and merit. Some of the older varieties were in first-rate form. It was pleasant to see George Hayward, Duke of Devonshire, and Victoria Regina well feathered again. In flamed flowers Sir Joseph Paxton is still supreme, but Samuel Barlow is a grand companion to the older variety, and a bloom of the latter variety would have had the premier this year had not it have been injured while growing. Breeders, with the exception of Mr. Horner's, were not up to the usual quality, being too young and bud-like.

This year the Judges were selected from among the exhibitors, and although there was no complaint of the judging it is unlikely that the experiment will be repeated, as it was found that the task of staging flowers and also judging was rather too great for comfort. There was a very stiff competition for the silver cup for the best twelve rectified

Tulips, which the Judges finally awarded to Mr. James W. Bentley of Stakehill near Manchester, who was closely followed by the Rev. F. D. Horner and Mr. C. W. Needham. This is the fourth year in succession that Mr. Bentley has won the first in the class for twelve rectified Tulips at this Show. The premier feathered flower was Mr. Needham's Wm. Annibal, a very correct flower, lightly feathered with red on a pale yellow ground. The premier flamed was Mr. Horner's Sir Joseph Paxton, shown in Class 8. The same gentleman also secured the prize for the best breeder with his seedling Fairy Ring, which was everything one could expect in shape, colour, and purity. Following is a complete list of the awards:—

Class 1. *Twelve dissimilar Tulips, two feathered and two flamed in each class.*—First, Mr. J. W. Bentley, Stakehill House, Middleton, with Lord F. Cavendish and John Mills, feathered bizarres; Sir Joseph Paxton and Samuel Barlow, flamed bizarres; Modesty and Julia Farnese, feathered roses; Mabel and Annie M'Gregor, flamed roses; Trip to Stockport and Bessie, feathered byblœmens; and Chancellor and Talisman, flamed byblœmens. Second, Rev. F. D. Horner, Burton-in-Lonsdale, with Sir Joseph Paxton and Masterpiece, feathered bizarres; Sir Joseph Paxton and Samuel Barlow, flamed bizarres; Mrs. Atkin and Mabel, feathered roses; Mabel and Annie M'Gregor, flamed roses; Mrs. Cooper and Miranda, feathered byblœmens; Duchess of Sutherland and Magpie, flamed byblœmens. Third, Mr. C. W. Needham, Royton, with Wm. Annibal and George Hayward, feathered bizarres; Sir Joseph Paxton and Dr. Hardy, flamed bizarres; Modesty and Miss Edwards, feathered roses; Aglaia and Mabel, flamed roses; Bessie and Elizabeth Pegg, feathered byblœmens; Talisman and Chancellor, flamed byblœmens. Fourth,

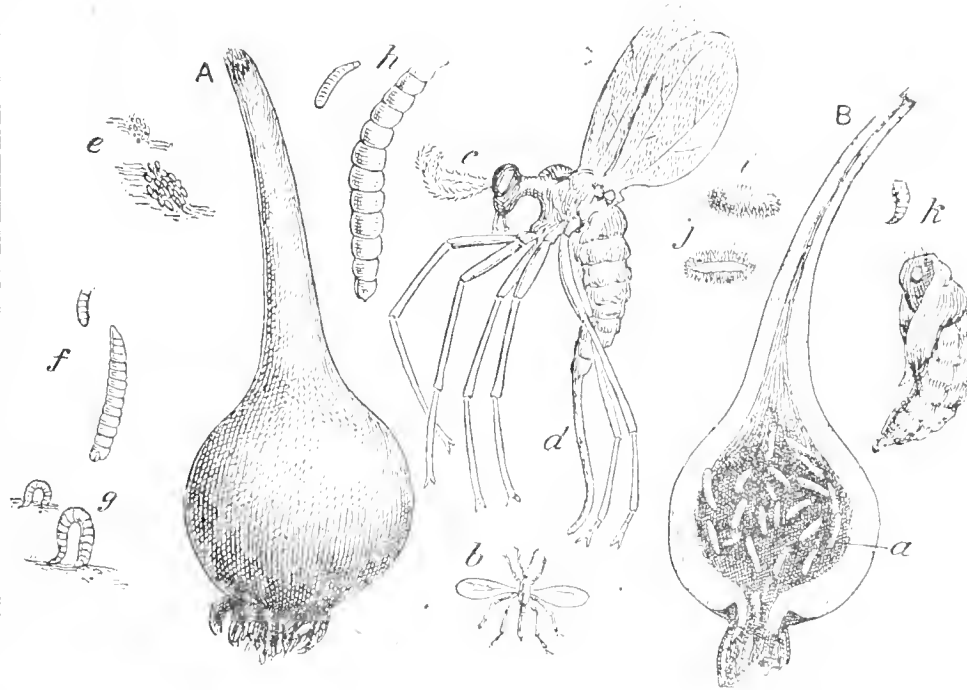


FIG. 95.—GALLED PEAR AND ITS CAUSE.

A, affected fruit (natural size). B, section of same, showing: a, gall with maggots. C, Pear gall gnat; D, male (natural size); E, female as seen depositing eggs (magnified); showing D, ovipositor; F, eggs (natural size and magnified); G, young larva, ditto; H, looping gait of maggot, ditto; I, full grown larva, ditto; J, cocoon (natural size); K, section of same showing maggot at rest; L, pupa (natural size and magnified).

Mr. A. Moorhouse, Wakefield, with Sir Joseph Paxton and Wm. Wilson, feathered bizarres; Sir Joseph Paxton and Wm. Wilson, flamed bizarres; Modesty and Industry, feathered roses; Aglaia and Annie M'Gregor, flamed roses; Trip to Stockport and Mrs. Hepworth, feathered byblœmens; Talisman and Bessie, flamed byblœmens. Fifth, Mr. T. Haynes, Warwick, with Sir Joseph Paxton and George Hayward, feathered bizarres; Sir Joseph Paxton and Dr. Hardy, flamed bizarres; Mabel and Alice, feathered roses; Mabel and Aglaia, flamed roses; Violet Amiable and Adonis, feathered byblœmens; Duchess of Sutherland and Beauty of Litchurch, flamed byblœmens.

Class 2. *Six dissimilar Tulips, one feathered and one flamed of each class.*—First, Rev. F. D. Horner, with Ben, feathered, and Saml. Barlow, flamed bizarres; Modesty, feathered, and Mabel, flamed roses; Charm, feathered, and Duchess of Sutherland, flamed byblœmens. Second, Mr. Bentley, with General Grant, feathered, and Dr. Hardy, flamed bizarre; Modesty, feathered, and Mabel, flamed roses; Camp's Seedling, feathered, and Talisman, flamed byblœmens. Third, Mr. Needham, with Sir Joseph Paxton, feathered, and flamed bizarres; Modesty, feathered, and Triomphe Royale, flamed roses; Elizabeth Pegg, feathered, and Talisman, flamed byblœmens. Fourth, Mr. Haynes, with Sir Joseph Paxton, feathered and flamed bizarres; Alice, feathered, and Triomphe Royale, flamed roses; Victoria Regina, feathered, and Talisman, flamed byblœmens. Fifth, Mr. W. Kitchen, Marple, with Storer's Seedling, feathered, and San Josef, flamed bizarres; Modesty, feathered, and Mabel, flamed roses; Trip to Stockport, feathered, and Lord Denman, flamed byblœmens. Sixth, Mr. Moorhouse, with Masterpiece, feathered, and Sir Joseph Paxton, flamed, Mrs. Lea, feathered, and Aglaia, flamed roses; Mrs. Hepworth, feathered, and Bessie, flamed byblœmens. Seventh, Mr. J. H. Wood, Middleton, with Sir Joseph Paxton, feathered, and Wm. Lea, flamed bizarres; Heroine, feathered, and Mabel, flamed roses; Alice Grey, feathered, and Talisman, flamed byblœmens. Eighth, Mr. W. Dymock, Stockport, with Lord R. Churehill, feathered, and Dr. Hardy, flamed bizarres; Seedling, feathered, and Annie M'Gregor, flamed roses; King of the Universe, feathered, and Seedling, flamed byblœmens.

Class 3. *Six dissimilar Tulips, one feathered and one flamed of each class, for small growers only.*—First, Mr. W. Preseott, Bedford Leigh, with Sir Joseph Paxton, flamed, and Lord Lilford, feathered bizarres; Miss Edwards,

feathered, and Annie McGregor, flamed roses; Mrs. Pickerill, feathered, and Adonis, flamed byblœmens. Second, Mr. John Morris, Bedford Leigh, with Sir Joseph Paxton, feathered and flamed bizarres; Industry, feathered, and Mdme. St Arnaud, flamed roses, Violet Amiable, feathered, and Lord Denman, flamed byblœmens. Third, Mr. A. Collinge, Middleton, with Sir Joseph Paxton, feathered and flamed bizarres; Modesty, feathered, and Aglaia flamed roses, Alice Grey, feathered, and Duchess of Sutherland, flamed byblœmens.

Class 4. *Three feathered Tulips*.—First, Rev. F. D. Horner, with Masterpiece, Modesty, and Mrs. Cooper; second, Mr. Prescott, with Lord Lilford, Modesty, and Bessie; third, Mr. Needham, with Wm. Annibal, Modesty, and Elizabeth Pegg; fourth, Mr. Bentley, with Masterpiece, Comte de Vergennes, and William Bentley; fifth, Mr. Morris, with John Ratcliffe, Modesty, and Bessie; sixth, Mr. Moorhouse, with Masterpiece, Modesty, and Trip to Stockport.

Class 5. *Three flamed Tulips*.—First, Rev. F. D. Horner, with Samuel Barlow, Mabel, and an unknown variety; second, Mr. Needham, with Sir Joseph Paxton, Mabel, and Talisman; third, Mr. Bentley, with Dr. Hardy, Mabel, and Mrs. Ramsbottom; fourth, Mr. Morris, with Sir Joseph Paxton, Mabel, and Lord Denman; fifth, Mr. Prescott, with Sir Joseph Paxton, Annie McGregor, and Lord Denman; sixth, Mr. Haynes, with Sir Joseph Paxton, Mabel, and Adonis.

Class 6. *Pair of Tulips, one feathered and one flamed, for maiden growers*.—First, Mr. G. Edom, Epsom, Surrey, with Sir Joseph Paxton and Mrs. Lea; second, Mr. Collinge, with Sir Joseph Paxton and Alice Grey.

Class 7. *Pair of Tulips, one feathered and one flamed*.—First (Samuel Barlow Memorial Prize), Mr. Prescott, with Sir Joseph Paxton and Annie McGregor; second, Mr. Needham, with Sir Joseph Paxton and Masterpiece; third, Rev. F. D. Horner, with Sir Joseph Paxton and Miss Edwards; fourth, Mr. Bentley, with Sir Joseph Paxton and Masterpiece; fifth, Mr. Haynes, with Sir Joseph Paxton and George Hayward; sixth, Mr. Moorhouse, with Sir Joseph Paxton and Masterpiece.

Class 8. *Single Blooms*.—

Feathered Bizarres.

- 1 Mr. Moorhouse, with Masterpiece
- 2 Mr. Bentley, with Lord F. Cavendish
- 3 Mr. Needham, with Storer's 106
- 4 Mr. Prescott, with Lord Lilford
- 5 Mr. Bentley, with General Grant
- 6 Mr. Haynes, with Ajax
- 7 Mr. Morris, with Sulphur
- 8 Mr. Bentley, with Duke of Devonshire
- 9 Mr. Bentley, with Lord Stanley
- 10 Mr. Bentley, with Sir Jos. Paxton

Feathered Byblœmens.

- 1 Mr. Kitchen, with Trip to Stockport
- 2 Mr. Needham, with King of the Universe
- 3 Mr. Needham, with Elizabeth Pegg
- 4 Mr. Kitchen, with Violet Amiable
- 5 Mr. Needham, with Queen of the May
- 6 Mr. Moorhouse, with Trip to Stockport
- 7 Mr. Needham, with Adonis
- 8 Mr. Needham, with Bessie
- 9 Mr. Needham, with Mrs. Jackson
- 10 Mr. Bentley, with Lord Melbourne

Flamed Roses.

- 1 Mr. Kitchen, with Mabel
- 2 Mr. Prescott, with Annie McGregor
- 3 Rev. F. D. Horner, with Mabel
- 4 Mr. Needham, with Queen of England
- 5 Mr. Kitchen, with Clío
- 6 Rev. F. D. Horner, with Industry
- 7 Mr. Needham, with Kate Connor
- 8 Mr. Kitchen, with Rose Hill
- 9 Mr. Wood, with Aglaia
- 10 Mr. Kitchen, with Rose Celestial

Class 9. *The best feathered Tulip in the whole exhibition*.—Mr. Needham, with William Annibal. *The best flamed Tulip in the whole exhibition*.—Rev. F. D. Horner, with Sir Joseph Paxton.

Class 10. *Six dissimilar breeder Tulips, two of each class*.—First, Rev. F. D. Horner, with Mrs. Barlow and Rosy Morn, roses; Dulcie and Fairy Ring, byblœmens; Red Rover and Sir Joseph Paxton, bizarres. Second, Mr. Bentley, with Mrs. Barlow and Rose Hill, roses; Beauty of Litchurch and Bridesmaid, byblœmens; Goldfinder and Sir Jos. Paxton, bizarres. Third, Mr. Needham, with Mrs. Barlow and Rose Hill, roses; Bridesmaid and Adonis, byblœmens; Goldfinder and Sir Jos. Paxton, bizarres. Fourth, Mr. Moorhouse, with Mrs. Barlow and Mabel, roses; Bridesmaid and Agnes, byblœmens; Sir Jos. Paxton and Dr. Dalton, bizarres. Fifth, Mr. Kitchen, with Rose Hill and Mrs. Barlow, roses; Alice Grey and Martin's 117, byblœmens; Sir Joseph Paxton and Goldfinder, bizarres. Sixth, Mr. W. Mellor, Wakefield, with Mabel and A. McGregor, roses; George Hardwick and Sarah, byblœmens; W. Wilson and Hardwick's Seedling, bizarres.

Class 11. *Three breeder Tulips, one of each class*.—First, Rev. F. D. Horner, with Mrs. Barlow, Fairy Ring, and Sir J. Paxton; second, Mr. Bentley, with Rose Hill, Queen of the May, and Lloyd's 47; third, Mr. Needham, with A. McGregor, Glory of Stakehill, and Goldfinder; fourth,

Mr. Prescott, with Mr. Barlow, Adonis, and Wm. Wilson; fifth, Mr. Moorhouse, with A. McGregor, Bridesmaid, and Sir J. Paxton; sixth, Mr. Kitchen, with Mabel, Martin's 117, and Sir J. Paxton; seventh, Mr. Mellor, with A. McGregor, Adonis, and Sulphur; eighth, Mr. Morris, with Mrs. Collier, Adonis, and Sulphur.

Class 12. *Single Blooms*.—

Bizarre Breeders.

- 1 Rev. F. D. Horner, with Sir J. Paxton
- 2 Mr. Bentley, with Goldfinder
- 3 Rev. F. D. Horner, with Wm. Lea
- 4 Mr. Bentley, with Sir J. Paxton
- 5 Rev. F. D. Horner, with Seedling
- 6 Rev. F. D. Horner, with Seedling
- 7 Mr. Bentley, with Richard Yates
- 8 Mr. Needham, with Lloyd's Seedling

Rose Breeders.

- 1 Rev. F. D. Horner, with Lady Grosvenor
- 2 Rev. F. D. Horner, with Rosy Morn
- 3 Mr. Moorhouse, with Mabel
- 4 Rev. F. D. Horner, with Mrs. Barlow
- 5 Mr. Bentley, with A. McGregor
- 6 Rev. F. D. Horner, with Lady Grosvenor
- 7 Rev. F. D. Horner, with Aurora
- 8 Rev. F. D. Horner, with Seedling No. 8

Byblœmen Breeders.

- 1 Mr. Bentley, with Agnes
- 2 Rev. F. D. Horner, with Fairy
- 3 Rev. F. D. Horner, with Fairy Ring
- 4 Mr. Bentley, with Adonis
- 5 Rev. F. D. Horner, with Seedling
- 6 Mr. Needham, with Talisman
- 7 Mr. Bentley, with Leach's Seedling
- 8 Mr. Needham, with Bridesmaid

The best breeder in the show was Mr. Horner's seedling byblœmen Fairy Ring.

BUTLEY TULIP SOCIETY.

THE seventy-second annual exhibition was held at Butley, near Macclesfield, on Friday, May 28th. Owing to the unfavourable nature of the season there were not as many exhibitors as usual, Messrs. Wood, Prescott, and Morris not putting in an appearance. The quality of the flowers left little to be desired, and it was generally conceded that it was the best show for many years. The great prize at Butley is a silver cup for the best stand of six rectified flowers, one feathered and one flamed of each class. It was worthily won by Mr. J. W. Bentley of Stakehill, with an excellent stand, comprising Sir Joseph Paxton, flamed, and John Mills, feathered bizarres; Chancellor, flamed, and King of the Universe, feathered byblœmens; Mabel flamed, and Julia Farnese, feathered roses. Mr. C. W. Needham was a good second, and Mr. Kitchen third. The Judges, Messrs H. Housley (Stockport) and R. Chadwick (Butley), also made the following awards.

Feathered Bizarres.

- 1 Mr. Needham, with Wm. Annibal
- 2 Mr. Needham, with Wm. Annibal
- 3 Mr. Bentley, with Masterpiece
- 4 Mr. Kitchen, with Sulphur
- 5 Mr. Bentley, with Lord F. Cavendish
- 6 Mr. Kitchen, with Paul Pry
- 7 Mr. Bentley, with Garibaldi
- 8 Mr. Bentley, with Luke Ashmole
- 9 Mr. Needham, with Magnum Bonum

Feathered Roses.

- 1 Mr. Bentley, with Modesty
- 2 Mr. Needham, with Modesty
- 3 Mr. Bentley, with Julia Farnese
- 4 Mr. Bentley, with Mabel
- 5 Mr. Bentley, with Alice
- 6 Mr. Kitchen, with Heroine
- 7 Mr. Dymock, with Seedling
- 8 Mr. Bentley, with Mrs. Wood
- 9 Mr. Needham, with Mrs. Collier

Feathered Byblœmens.

- 1 Mr. Bentley, with Bessie
- 2 Mr. Needham, with King of the Universe
- 3 Mr. Needham, with Elizabeth Pegg
- 4 Mr. Bentley, with Camp's Seedling
- 5 Mr. Kitchen, with Trip to Stockport
- 6 Mr. Needham, with Queen of the May
- 7 Mr. Bentley, with Bessie
- 8 Mr. Needham, with Wm. Parkinson
- 9 Mr. Jones, with Bertha

Flamed Bizarres.

- 1 Mr. Needham, with Sir J. Paxton
- 2 Mr. Kitchen, with San Josef
- 3 Mr. Bentley, with Samuel Barlow
- 4 Mr. Needham, with Dr. Hardy
- 5 Mr. Bentley, with Sulphur
- 6 Mr. Needham, with Hepworth's Seedling
- 7 Mr. Needham, with Sir J. Paxton
- 8 Mr. Needham, with J. Booth
- 9 Mr. Bentley, with Lord Stanley

Flamed Roses.

- 1 Mr. Kitchen, with A. McGregor
- 2 Mr. Needham, with Aglaia
- 3 Mr. Bentley, with A. McGregor
- 4 Mr. Bentley, with Madame St. Arnaud
- 5 Mr. Bentley, with Mabel
- 6 Mr. Needham, with Triomphe Royale
- 7 Mr. Bentley, with Sarah Headly
- 8 Mr. Needham, with Kate Connor
- 9 Mr. Kitchen, with Rose Hill

Flamed Byblœmens.

- 1 Mr. Needham, with Talisman
- 2 Mr. Bentley, with Mrs. Ramsbottom
- 3 Mr. Needham, with Hepworth's Seedling
- 4 Mr. Bentley, with Talisman
- 5 Mr. Kitchen, with Duchess of Sutherland
- 6 Mr. Bentley, with Black Diamond
- 7 Mr. Dymock, with Seedling
- 8 Mr. Kitchen, with Lord Denman
- 9 Mr. Bentley, with Chancellor

Three breeders, one of each class.—First, Mr. Bentley, with Lloyd's 47, Rose Hill, and Alice Grey; second, Mr. Kitchen, with Sir J. Paxton, Rose Hill, and Alice Grey; third, Mr. Hague, with Dr. Hardy, Industry, and Alice Grey.

Bizarre Breeders.

- 1 Mr. Bentley, with Lloyd's 47
- 2 Mr. Bentley, with Goldfinder
- 3 Mr. Bentley, with Sir J. Paxton
- 4 Mr. Bentley, with Excelsior
- 5 Mr. Needham, with S. Barlow

Rose Breeders.

- 1 Mr. Bentley, with A. McGregor
- 2 Mr. Needham, with Mrs. Barlow
- 3 Mr. Bentley, with Queen of England
- 4 Mr. Kitchen, with Rose Hill
- 5 Mr. Needham, with Lloyd's 220

Byblæmen Breeders.

- 1 Mr. Needham, with Bridesmaid
- 2 Mr. Bentley, with Beauty of Litchurch
- 3 Mr. Bentley, with Alice Grey
- 4 Mr. Bentley, with Adonis
- 5 Mr. Kitchen, with Unnamed.

Best yellow self, Mr. Needham, with Citronella. Best white self, Mr. Bentley, with Cygnet.

The extra prizes for the best feathered, the best flamed, and the best breeder Tulips in the show were all won by Mr. Bentley, with Sir J. Paxton, flamed; John Mills, feathered; and Lloyd's 47, breeder. After the judging the members and friends dined together, Mr. C. W. Needham, the President for the year, occupying the chair.

TAMWORTH PANSY AND VIOLA SHOW.

DESPITE the unpropitious weather that had predominated for the last few weeks, this important exhibition, which was held on the 26th ult., in a large marquee at Bolehall House, the charming residence and grounds of Mr. Wm. Sydenham, the well-known cultivator and raiser of Violas and Fancy Pansies. The recent show was, in some respects, not so good as usual, the entries also, from the same cause, being less; otherwise it proved successful, and was well attended by visitors.

The leading feature of the show was Mr. W. Sydenham's extensive and much varied display of Pansies and Violas, and for which the gold medal was worthily awarded. Another attractive feature by the same gentleman was a beautiful Jubilee design of Violas forming the initials V.R., the upright stands having been made for the purpose out of Sydenham's rustic table adornments. In the centre the "V" was composed of the rich crimson purple Councillor W. Waters, and the "R" in the rayless deep yellow Pembroke, evidently the best yellow self in cultivation, as seen at the present time in the Sydenham collection. The variety in question was awarded a F.C.C. at Regent's Park Show last year, and has "come to stay" evidently. The flank designs, representing the years 1837 and 1897, were worked in white and yellow and blue and white respectively, the varieties employed being Niphetos and Stephen for the former, and Niphetos and Mrs. H. Bellamy for the latter. Altogether it was an appropriate, well conceived arrangement, reflecting much credit on the decorators, Mr. Sydenham's two daughters. In addition to the foregoing there were also other similar designs by the same artists, one being a most effective Prince of Wales' Plumes, composed of the white Niphetos and Formidable, a new seedling, catalogued 1897, a lovely variety, colour soft lavender self, with white and yellow centre. Flanking this were two representations of Fir trees, which were respectively decorated with Dr. Sculthorpe, a pale creamy self, rayless, a real acquisition, and Amy Barr, a dark pink with deeply veined white centre, a charming variety. The whole of the designs were more or less supplemented with a fringement of Fern fronds and Asparagus sprays judiciously introduced.

In the competitive classes Mr. J. M. Johnston was awarded the first prize for a very handsome cross, composed of white and purple Violas and Maidenhair Fern; the second prize being secured by Mr. R. Pemberton with a smaller, but very pretty arrangement. Two charming exhibits were seen in the class open for any design, in which any kind of flowers and foliage were allowed, the first prize falling to Mr. J. M. Johnston with a lyre design, the framework being composed of white and light blue Violas, with a centre of white, lilac, and blue Forget-me-not. Mrs. Lovatt obtained the second prize with also an effective design representing a harp. A certificate of merit was awarded to Mr. R. Sydenham, Birmingham, for a charming display of Carnations and Roses, and Mrs. Chadwick, Hints Hall, lent a quantity of ornamental foliage and flowering plants, which added much to the exhibition. The attention of specialists was drawn to a new seedling Viola named A. Sydenham, an entirely new character, the curious feature being that every petal was crimped all over.

In the cut bloom classes, open, including trade growers, for forty-eight Fancy Pansies, dissimilar, the first prize and gold medal was awarded to Mr. A. Lister (Rothsay) with a meritorious stand, including several novelties, the second prize falling to Mr. J. Smellie for a worthy assortment. In the three subsequent classes—viz., for twenty-four blooms, twelve blooms, and six seedlings, the awards fall as in the order named; whilst for the best exhibit of Violas, artistically shown, Mr. Smellie secured the chief honours with a collection arranged with much taste.

There was a fairly strong show in the "open amateurs' division," and in a few instances the competition was keen. The exhibits most distinguished were those shown by Mr. T. Nadin (Derby), Mrs. R. Lovatt (Newport), Mr. J. M. Johnston, and Mr. J. W. Paul.

The local amateurs' class formed a somewhat small but interesting show. Mr. J. W. Paul (Wilnecote) secured first honours in the classes for twelve and six Pansies (Fancy) respectively, and Mr. Johnston secured the first award in the Viola class. There was little competition in the local cottagers' section, and the first and second prizes fell to Messrs. R. Hatwell (Frasley) and H. Machin (Tamworth).

Mention was nearly omitted of the competition in the class for twelve Show Pansies, dissimilar, not a strongly represented class, the first and second prizes being awarded to Messrs. A. Lister and J. Smellie respectively for stands of very good blooms.

The band of the Bedfordshire Regiment was in attendance, and the visitors availed themselves of the permission to inspect the splendid array of Pansies and Violas in Mr. Sydenham's nursery department.

During the course of a brief inspection amongst the forthcoming novelties growing in the various quarters the writer's attention was drawn to a few possessing considerable merits, and conspicuous amongst the Violas was one named Charles Hughes, a decided improvement on Peter Barr, and with a broader border of a deeper blue than the older beautiful variety. A veritable gem is a new one of the Violetta type, called "Robin," of very dwarf habit, and producing a mass of bloom throughout the season, colour pale blush. Another striking Viola is "Devonshire Cream," an appropriate name. It is a seedling from President, and much more floriferous, and evidently destined to supplant such as the famous Sylvia. As a strong opponent of such as Archie Grant and True Blue, one named Britannia, a seedling from Blue Gown, but very much darker, with an excellent habit, claimed special attention.

Amongst Fancy Pansies one called Felicia, a fine thing with purple blotch edged with maroon, was noticeable, whilst Turquoise, with a beautiful circular dark purple blotch on an orange ground, is destined to become very popular. Exceedingly attractive is Mrs. R. G. Moir, with its large circular velvety dark blotches, laced pure white, tinted with crimson, upper petals white, with a broad band of reddish purple, picoteed with white. Amongst the many other acquisitions the noted Tamworth Yellow holds its own, and is one of the best summer flowers extant, as the sun does not readily fade the colour. It is a great favourite with the public.

THE YOUNG GARDENERS' DOMAIN.

EUCHARIS AMAZONICA.

THE Eucharis is a plant of great beauty in both foliage and flowers, and should take front rank amongst stove flowering plants. It is of easy culture when once its requirements are understood. When healthy the plants do not like being interfered with at the roots. Unhealthy plants should be taken out and thoroughly cleaned. Large plants may be divided to increase the stock, or given larger pots as needed. A compost of three parts rough turfy loam to one part each of dry Oak leaves passed through an inch sieve, charcoal, and sand, and to every bushel of compost a 6-inch pot of half-inch bones we find suitable.

See that the pots are well drained, as the plants like an abundance of water when growing, but it should pass quickly away. Pot firmly, and place them in a temperature of 70° at night, with a corresponding rise in the day. Shade and syringe them two or three times a day, according to the weather. Watering must be carefully attended to. Some growers partly dry the plants off and keep them cool, but it is the safest plan to keep them fairly moist all the year round with a fall of 5° to 10° in temperature when not in active growth.

Mealy bug and the Eucharis mite are the two most troublesome pests; the former may be kept down by frequent spongings. The mite seldom attacks healthy plants, but should it do so wash the bulbs in some approved insecticide. When well rooted the plants should receive liberal supplies of liquid manure two or three times a week. If the above details of culture be carried out, healthy plants should flower two, and sometimes three times a year.—GROWER.

PACKING.

IN most private gardens, as well as the market nursery, packing is a necessity, but the private gardener does not always do his packing the same as the market grower.

GRAPES.—There are two or three different methods of packing Grapes; one of them is in deep square boxes made for the purpose. The box is well lined with wood wool, both at the bottom and sides. A sheet of tissue paper is put over this, and the Grapes packed in as close as possible with the bunches upright, the bottom of each bunch at the bottom of the box. Over the top of them is put tissue paper, then wood wool, and the lid is fastened securely.

Another method, and the one chiefly in use by market growers, is packing in baskets. The baskets have plenty of wood wool at the bottom, covered over with tissue paper. The bunches are laid on this as closely as possible, and the baskets covered with strong paper, taking care that this paper does not touch the Grapes, or the bloom would be rubbed off.

Exhibitors when sending Grapes to shows usually fix the bunches on the show-boards previous to starting, fastening them down with string. The boards are then placed in a box made to hold them firmly, or so that the board cannot move about. A handle is fixed on the top, or two at the sides, and the box labelled "This side up, with care."

MELONS.—If Melons are to be sent away singly, a small Grape box is suitable for the purpose, the bottom of the box lined with wood wool. The Melon is wrapped with tissue paper, and then placed in the centre of the box, sides and top being then well filled with the wool, and the lid nailed on. If Melons are to be sent away in large quantities, a box 4 feet long, 3 feet wide, and about 1 foot deep will hold from a dozen to fifteen fruits, according to size. The box is well covered at the bottom with wood wool or hay, each fruit being wrapped in tissue paper. Great care is taken that they do not touch each other, and the spaces between are filled with wood wool as the Melons are placed in the box. A good layer of wool is put over the top, taking care not to break the short piece of stalk that is cut with each fruit.

PEACHES AND NECTARINES.—These, like Melons, travel the best a single layer. Boxes about 4 inches deep, made to hold about eighteen or twenty-four fruits, are the most suitable size; a layer of cotton wool at the bottom, and over it a sheet of tissue paper. The Peaches are

also wrapped in tissue paper, and then placed in the box, leaving a small space between them, to be filled with bran or clean sawdust. Another layer of cotton wool is placed on the top previous to applying the lid.

Another way is to wrap tissue paper round the bottom half of the fruit, and cotton wool, cut into strips, round the paper. As this is done they are placed close to each other in a box in which cotton wool has previously been laid. A sheet of tissue paper is then placed over them, and another layer of wool on the top. Inferior Peaches and Nectarines for culinary purposes may be packed in any ordinary square box lined with paper and the bottom covered with bran or cotton wool. A layer of fruit is placed on this and covered well over with half an inch of bran, a slight shake given to the box causing the bran to fill all crevices between the fruit. Other layers of bran and fruit follow until the box is full.

STRAWBERRIES.—These for dessert must be picked when dry, each fruit with a stalk about half an inch long. Strawberry boxes about 2 inches deep hold one layer. A sheet of tissue paper is spread in the box. Their own leaves are the best to pack them in, using one leaf for each fruit. It should be laid in the leaf with the end of the fruit towards the apex and a twist given to the leaf round the stalk of the fruit. The leaf will cover three parts of the Strawberry. The fruits are placed in the box as each is wrapped up, and as close together as possible. In this manner the upper part of the fruit is uncovered, and over this is spread soft leaves until the box is full. This method is chiefly practised in private gardens. Market growers usually pack their Strawberries in punnets, one or more layers of fruit in each, and boxes or baskets are made to hold a certain number of punnets. For preserving, Strawberries are gathered without stalks, and an ordinary box, lined with Cabbage or Rhubarb leaves, answers for packing them. All kinds of fruit for preserving may be packed in the same way.—ELVEDEN.

(To be continued.)

TOMATO CULTURE.

THOUGH the Tomato was introduced just before the Potato it is only in recent years it has become so popular with all classes and so largely cultivated. Although much has naturally been written about Tomatoes I may be excused for describing practice that has given satisfactory results; still, whether in growing for market, exhibition, or home consumption we should always try to improve on the past, no matter how excellent the results may have been. This is the spirit which should animate all young gardeners in doing the work entrusted to them.

CULTIVATION.—Our first seed is sown about the middle of December, and the pots placed in a hothed till the plants appear, when they are removed to a shelf near the glass in an early vinery where the temperature is seldom under 60°. We sow thinly in well-drained pots and pans, and use equal parts of loam and leaf mould. The next sowing is made in January and February for growing under glass; the third in March for planting outside—strong plants in 6-inch pots with some fruit set by the end of May. Plants are raised early in July for fruiting during the winter, the crop being set before the dark days come.

The plants, when they have two rough leaves, are potted singly in 3 and 5-inch pots and plunged in a hotbed, the house having a temperature of about 60°. Those in 5-inch pots are transferred when nicely rooted to the fruiting pots and boxes, not waiting till the plants are root-bound. Those in 3-inch pots are transferred when ready to the 6-inch size. The compost used for potting from the seedling stage till the final shift is composed of three parts loam and one part of equal shares of leaf mould and horse droppings, with a dusting of bonemeal. The soil is warmed for the early plants before using, and they are not taken to a cool place to be potted, a practice by which many get chilled. The soil used for the final shift is the top spit from a deer park, cut about 3 inches deep and left till the grass is decayed before using. Room is left for top-dressing several times, "light and often" being my maxim in this work.

Boxes are preferred to pots, the size chiefly employed being 30 inches long, 20 deep, and 13 wide, each holding three plants. Copious supplies of liquid manure are given when the roots have taken firm possession of the soil. Soot, cow, sheep, and pigeon manure are used, varying them each week. Occasionally sprinkling the surface of the soil with guano, and a mixture given some time ago in the Journal, of bone superphosphate eight parts, nitrate of soda four parts, and muriate of potash two parts, watering in when used, acted beneficially.

All the plants are grown on the single stem system, as after trials it was found the heaviest weight of fruit was thus obtained from a given space. All side growths are rubbed out as they show, as if left to extend they rob the plants and fruit. Seldom are any leaves or part of leaves cut off, as they are required if the plants are carrying a heavy crop of fruit in various stages of ripening. Some of the finest fruit (20 ozs. in weight), and heaviest crops I ever grew were cut from pots plunged in a bed of leaves nearly cool, into which the roots spread over 15 feet from the pots. The growth was strong, and the leaves very large. The tiers of fruit when colouring touched one another, and were compared to hanks of Onions. Perfection and Frogmore Selected were the varieties thus grown, and only a few half leaves were cut off over the fruit.—W. T., Ireland.

(To be continued.)

TRADE CATALOGUES RECEIVED.

F. A. Haage, jun., Erfurt.—*Cacti*.
J. Peed & Sons, Norwood.—*Caladiums*.



HARDY FRUIT GARDEN.

Syringing and Cleansing Wall Trees.—The liability of the shoots of many wall trees to be attacked with insects, chiefly aphides, at this season necessitates effective measures being taken to extirpate them. Cherries, Plums, Peaches, Nectarines, Apricots, Gooseberries, and Currants are the most frequently attacked. The causes of the annual insect invasion are due to impoverishment of the roots by poor or dry soil, and unsuitable positions. A few insects once established on the young shoots soon multiply rapidly, until quite a colony is formed on the youngest leaves and succulent parts. If the infested shoots are not too numerous the insects may be destroyed by the process of dipping the ends of the shoots in a portable vessel containing some effective solution. Softsoap dissolved at the rate of 2 ozs. to the gallon of water is a very common and useful insecticide, which may be made more potent by adding 1 pint of tobacco water. This mixture will do either for dipping shoots or for a general syringing of the trees, operating in the evening when the sun is declining.

The numerous advertised insecticides are also good, and frequently more convenient to prepare for immediate use. Isolated shoots only lightly infested with aphides may be dusted with tobacco powder. Shortly afterwards wash it off again along with the destroyed insects by a vigorous syringing from a hand syringe or garden engine.

As a means, too, of maintaining the trees regularly clean and preventing the establishment of insects frequent syringing with clean water in warm weather is indispensable. Root moisture must be kept up according to the weather and demands of the trees. This is an important precaution against ill health. Some trees may be slightly affected with mildew, a remedy for which is sulphide of potassium, half ounce to a gallon of water.

Training and Treatment of Young Fruit Trees.—Regular attention in training-in the young shoots of recently planted wall trees is a most important point in laying a foundation of branches, and properly filling in the space available. As far as possible the branches should be developed equally. This may be accomplished by judiciously suppressing the strong shoots and encouraging the weaker. If not desirable to shorten or reduce the length of any rampant leaders depress them and elevate the weaker to more upright growth. In laying in the shoots for furnishing allow each abundant room. Fan-trained trees may have all the wood possible laid in on these lines. The principals should be trained far enough apart to admit secondary branches and lateral shoots. Wood of medium strength is in most cases to be preferred to strong sappy growths. Maintain the foliage clean and healthy by syringing in warm weather.

Trees trained in restricted forms for the most part require extension of the branches already originated, with possibly some additional in suitable positions. The leaders of each branch ought to extend unchecked, but the side shoots advancing into long growths must be summer pruned. Fruit spurs will then have a chance of forming at their base. Shoots, however, forming spur growths in a natural manner should obviously be left alone.

Apply water at intervals to the roots of trees where the ground dries quickly and the roots are liable to suffer. With young trees repeated heavy waterings ought to be avoided. It is more desirable to mulch the surface with littery manure after a copious application. This arrests evaporation, and the trees benefit from the more regular moisture in the soil accordingly.

Established Wall Trees.—*Laying in Wood.*—The reserved shoots of Peaches, Nectarines, Apricots, Plums, and Cherries must be selected and carefully laid in along the desired direction they are intended to be trained. It is not necessary that they be permanently secured to the wall or trellis at present, but they ought to be retained in position. They can temporarily be fixed by the aid of pliable young shoots cut in suitable lengths. Lay them across the growths desired to be secured, fixing the ends underneath the strong branches. Superfluous shoots must be dealt with by shortening or cutting out.

Outdoor Vines.—Tying and stopping the side shoots of Vines on walls or trellises demands now frequent attention. Disbudding having been effectively carried out, there should remain on each spur not more than two shoots. One of these ought to be showing a bunch of fruit. The other may probably do so too, but it is not necessary that both carry a bunch. If the shoot nearest the main rod bears the bunch and is retained the other may be dispensed with. Should, however, the contrary be the case, both shoots may be preserved, the lower one affording prominent buds for pruning to in winter. Stop the fruiting shoots one or two leaves beyond the bunch, according as room is available. Shoots retained, but which are not showing fruit, stop at the seventh leaf. Those required to extend into long canes for filling vacancies do not stop until they have attained a length of 3 or 4 feet. A fresh leader may then be allowed to grow unchecked. The ripest portion of such canes, and which will be fruitful the following year, will be that below the stopping point this season. The principal leaves must be carefully preserved, but the lateral growths issuing from their axils may be broken out.

FRUIT FORCING.

Peaches and Nectarines.—Earliest House.—When the fruit is all gathered from individual trees, the wood on which it has been produced should be cut away to the shoot at its base, which is to afford the bearing wood for next season, except if the fruit has been produced on wood that is necessary to retain for the extension of the trees. All growths not absolutely necessary for bearing next season, or for the extension of the trees, must be cut away, as it is important the foliage be fully exposed to light and air, and it is equally essential that it die naturally, not prematurely through attacks of red spider or lack of moisture at the roots. Employ the syringe freely, keep the inside border well watered, and the outside border must not be neglected if the weather be dry. Admit all the air possible, and when the buds plump, and the wood thoroughly ripened, the roof lights, where moveable, may be taken off.

Trees Ripening their Fruit.—Ventilate freely, leaving a little air on constantly, and to insure the preservation of the foliage in health sprinkle the paths and borders with water in the morning and afternoon, not allowing the soil to become dry, but giving water as required. A mulching of short spent material is very useful in preventing the surface cracking, and the roots going down in quest of moisture. Syringing must cease directly the fruit commences to soften for ripening, or the moisture will cause the skin to crack and leave an unpleasant musty flavour, as well as spoiling its appearance.

Trees of Midseason Varieties Started in January.—After the fruit takes the last swelling give every attention to the trees in watering with liquid manure, or affording water through a mulch of short manure. The shoots may be allowed to extend, not pinching the laterals in too closely, but they must be prevented shading the fruit, raising this with its apex to the light. To secure this place laths across the trellis, securing them to the wires. Continue forcible syringings morning and afternoon until the fruit begins ripening, then cease syringing, but do not allow the border and other surfaces to become parchingly dry, as moderate moisture, provided the ventilation is liberal, will not injure the fruit, and it is absolutely necessary for the benefit of the foliage.

Trees Started in February.—The fruit of these is stoning. It has made satisfactory progress, attaining to a good size, as is always the case when the trees are not hurried, nor overcropped, and well attended to as regards nourishment and proper exposure of the foliage to light and air, with free ventilation on all favourable occasions. To continue the fruit in steady progress and insure its stoning satisfactorily there must be no deficiency of moisture at the roots, and the foliage must be kept clean by daily syringings, also, if necessary, by the prompt application of an insecticide. Continue the temperature at 60° to 65° artificially, and allow a free circulation of air between 70° and 75°, having it full when the latter is reached, and close at 75° with plenty of atmospheric moisture. If the temperature rise to 80° or 85° it will not do any harm, but admit a little air before nightfall, so as to allow the pent-up moisture to escape and the temperature to gradually cool through the night. Commence increasing the ventilation with the advancing heat from 65°.

Later Houses.—If desired to retard the fruit in any of these, so as to prolong the season of supply, it is best effected by freer and lengthened ventilation during the day and night when mild. Indeed there is only need to ventilate day and night to keep the crop back so as to ripen about the same time, as that usually occurs with trees against walls, and by judicious ventilation the fruit may be had over a lengthened period.

Vines.—Early House.—As soon as the Grapes are cleared give the inside borders a thorough supply of liquid manure, or a top-dressing of fertilisers washed in moderately. Keep the ventilators open constantly even in cold weather. Syringe thoroughly to cleanse the foliage, and repeat occasionally to keep the old leaves healthy. Fresh laterals will soon be produced, and cultivators should maintain an even growth all over the Vines, pinching the gross laterals, and encouraging the weak. The mulching or covering having been removed from the outside border, with just enough of the lighter part left to protect the roots, a good watering with liquid manure may be given, but this will only be needed where no rain has fallen. Avoid heavy mulching.

Second Early House.—Vines started at the new year have the Grapes ripening, but there is fully a fortnight to three weeks difference in the time of ripening between Vines carrying light crops and those with heavy burdens. Maintain a circulation of warm rather dry air constantly, increasing the ventilation early. Keep the floors well damped on hot days, with a view to check excessive evaporation, allowing the temperature to fall to 60° at night when cold, or 65° when warm, with sufficient warmth in the pipes to prevent water condensing. If there is likely to be any want of finish allow the Vines time by giving as long a rest at night as possible. If there is any doubt about the roots lacking moisture examine the border, and if found necessary give a thorough soaking in the morning of a fine day, and when soaked in mulch with a little light material. Moderate moisture is essential to the health of the foliage, hence damping the floors must be resorted to occasionally, as there is no fear of its damaging ripe Grapes at this season if only it be accompanied with air; besides, the moisture will assist in keeping the Grapes, and to prevent colour being taken out of Hamburgs a double thickness of herring net should be drawn over the roof lights. Allow a moderate extension of the laterals to encourage root action.

Midseason Houses.—Vines in these will be in various stages of development, according to the time of starting. Those which have stoned will be swelling the berries fast, and the borders should have a soaking of

tepid water through a mulching an inch or two thick. The drainage being good, water will be needed once a week if the border is limited to a small area, or fortnightly intervals, until the Grapes are somewhat advanced in colouring, when it must be stopped. Admit a little air constantly at the apex, and ventilate freely in the early part of the day, closing early with sun heat and a genial condition of the atmosphere. Fire heat will only be necessary to secure 60° to 65° at night, and 70° to 75° by day, keeping through the day at 80° to 85°, and closing sufficiently early to run up to 90° or 95°. This will insure the berries swelling to a good size, and with a free circulation of air a good finish may be secured.

Grapes Stoning.—During this process the Vines should have a regular temperature of about 65° at night, and 70° to 75° from artificial heat, if the Grapes are wanted by a given time, but if not 65° only need be maintained on dull, cold days; but admit air in good time, always a little at 70° or before after a spell of dull weather, so that any moisture shall be dissipated before the sun acts powerfully upon the foliage. Allow a moderate extension of the laterals, but avoid overcrowding, and supply liquid manure or water, washing in a top-dressing of approved fertiliser, or passing through a mulch of short stable manure. Avoid, however, feeding luxuriant Vines too liberally, especially with ammoniacal or nitrogenous manures, giving in their case dissolved bones, with a little sulphate of potash. This will enable the Vines to maintain steady progress, whilst storing food for the coming season's bearing.

Grapes Scalding.—Muscats and Lady Downe's in the later stages of stoning are liable to scald, therefore must be watched in hot bright weather, and air admitted more freely for a fortnight or three weeks, unless colouring commences, when all danger will be over. Black Hamburgs also are sometimes scorched when the berries are exposed to the direct rays of the sun, which can mostly be avoided by a good spread of foliage, and remedied by a bountiful supply of air by day and a little ventilation constantly, with a genial warmth in the hot-water pipes.

Early Muscat House.—The fruit ripening will need a dry condition of the atmosphere as compared with Black Hamburgs, but avoid great aridity, or the foliage will fall a prey to red spider. Muscats must have time to ripen and acquire that rich amber colour so much prized. Do not allow any deficiency of moisture in the borders, for Muscats are gross feeders, but give tepid liquid manure or water through surface mulching. The supply of water to the roots will to some extent compensate for the drier condition of the atmosphere. Provide a circulation of air constantly, preventing the moisture condensing on the berries by sufficient warmth in the pipes to insure a changing atmosphere. Lateral extension is the best safeguard against shanking at this stage, along with a steady temperature. Avoid sudden fluctuations and depressions. Keep the night temperature at 65° to 70°, 80° to 85° by day, with a little sun, and 90° to 95° with it in full force. Ventilate early, and regulate by the sun's increase, and so with its decline, reduce early, securing as long a day of ripening from sun heat as possible. The old leaves of Muscats are liable to be scorched under powerful sun after a period of dull cold weather. In very bright weather draw a single thickness of tanned netting over the roof lights, which, without impeding too much light, will prevent the condensation of moisture.

PLANT HOUSES.

Caladiums.—Plants that it is intended to grow for conservatory or other forms of decoration in intermediate structures should be placed at once into larger pots. After the plants have started rooting freely in the new soil give them more air, so that firm sturdy growths will follow. Full sunshine may also be admitted to these plants. When grown under close, moist, and shady conditions their foliage falls directly the plants are placed in cooler and more airy quarters—in fact, they are practically useless for many forms of decoration.

Achimenes.—More cuttings may be inserted in 5-inch pots; these root quickly if placed in a moist shady position for a week or ten days, or in the propagating frame. The plants from which cuttings have been obtained should then be allowed to grow or to develop their tubers for another year. When once these are again fairly started into growth weak stimulants should be given them, or else they will grow weakly. Plants rooted some time ago and now in pots should be supported by four or five small stakes and one or two pieces of matting.

Poinsettias.—Do not keep plants growing in too close and warm a structure, or else they will draw up weakly and soon become leggy. They should occupy an intermediate temperature, and air should be given liberally when fine, which will result in sturdy growth. Young plants that need repotting ought to be attended to from time to time, and the soil should be pressed firmly into the pots; loose potting is a great mistake and only encourages soft rapid growth. These plants do well in fibry loam, one-seventh of manure and sand.

Euphorbias.—Cuttings of *E. jacquiniifolia* should now be plentiful, and will root freely if they have been prepared by thorough hardening in a cool airy house for the last fortnight. The young shoots should be taken off just where they are emitted from the old stem with a sharp knife, and if inserted in sandy soil and covered with a bell-glass, shaded from the sun, and kept in a close warm house, the majority will root. If the cuttings have been produced in brisk heat and are then inserted nearly every one will fail. Once sufficient young stock has been raised the old plants, if needed, may be cut back and allowed to start from the base.

Asparagus plumosus nanus.—Large or fair sized plants that display a tendency to form crowns may be divided into small pieces.

The plants soon become established and are useful for various decorative purposes. Cuttings of *A. plumosus* and *tenuissimus* root freely. If portions of the stem with a leaf attached are inserted in sandy soil, in small pots, and stood under hand-lights in a warm house, every one will root, and by winter make useful decorative plants in small pots. Where larger plants are needed repot those that have become too large in 4 and 5-inch pots.

Crotons.—Good heads that were taken off some time ago and are well established in 5 and 6-inch pots may be placed into larger before they become unduly crowded with roots; give each plant room to develop itself so that they do not become one-sided. Side shoots may now be taken from stock plants and rooted; these root freely in hand-lights in heat, if shaded from the sun, and will make good plants for many forms of decoration by autumn. Narrow-leaved kinds are very useful in a small state for table decoration, and these may be rooted in quantity, and when placed into 4 or 5-inch pots should be grown on a shelf close to the glass. Plants that it is necessary to retain for stock may, when the cuttings have been removed, be cut close back and allowed to start from the base.

Dracaenas.—Young plants should be repotted as they need more root room. Those plants that it is necessary to grow into a larger size, and which are now in 5 and 6-inch pots, should be placed into larger as soon as they are ready. These plants should be shaded for a few hours during the brightest and hottest part of the day, or else their foliage will colour too lightly.

THE BEE-KEEPER.

THE WEATHER.

TEN days of bright weather have been very beneficial in the apiary, and stocks which are headed by young queens—i.e., queens which were bred during the summer of 1886, are rapidly improving. Many of the more forward colonies are ready for supering. At this season one can almost tell at a glance the stocks that are headed by young fertile queens; the difference is so great when compared with those having old worn-out queens. There are exceptions, it is true, but as a rule queens are at their best the second season. Now is the time to make a note of those which are doing well, with a view to raising the required number of young queens next month.

It has not been ideal bee weather, owing to the fact that the wind has been in a northerly or easterly quarter the whole of the time, a low temperature prevailing at night. The cold cutting winds, I fear, have damaged the Apple blossom which during that period has been expanded. The sun, though, has been very powerful, necessitated shade for strong colonies of bees. Although the show of bloom on the fruit trees has been better than usual, the Hawthorns, on which the bees work freely, are in marked contrast to what they were last year; at this time they were a sheet of bloom, now only a few scanty blossoms are to be seen.

The Horse Chestnuts, however, make up for the deficiency. The honey, though obtained from that source, is of an inferior quality, and will spoil what might otherwise be a good sample for extracting purposes. In many districts Chestnuts are very plentiful, and where such is the case it is useless attempting to obtain a good sample of run honey early in the season. Partly for this reason, and owing to the fact that there is always a better market (in my experience) for run honey than for sections, we only work a few hives for the latter, and already the bees are working freely in the crates of sections that have been given to them.

PREPARING FOR THE HONEY HARVEST.

All will depend on the preparations now being made in connection with the apiary whether the bee-keeper will derive full benefit from his bees. We cannot command fine bright weather just when it is necessary during the honey flow, but let us endeavour to deserve success by using every means in our power to have all our hives overflowing with bees in each locality when the bulk of the honey is to be obtained. How is this to be done? It may be summed up in one word—Management. Therein lies the whole secret of success or failure in bee keeping.

Continue to give extra frames of foundation, or better still, fully drawn out combs as required, placing them next to the outside frame containing brood. The frame next to the division board usually contains stores and pollen, the latter being always placed near the brood nest for convenience of feeding the young bees. If honey is coming in freely a crate of sections may be placed on the strongest stocks, or if run honey is required a crate of shallow frames may be used instead. By this means the bee-keeper is often able to obtain some early honey which would otherwise be stored in the brood nest. Care must be taken that the hive is full to overflowing with bees, otherwise they will not enter supers. But there are always some colonies in an apiary at this season which are

stronger than others, although all may have received the same treatment. Why this should be the case it is difficult to say, but it is probably owing to the queen commencing to lay earlier in the season than others.

Bees will invariably commence working in supers if the brood nest is restricted, but it is not a plan to be recommended. It is, however, an advantage to do so if there are no other means of obtaining a few early sections; the brood nest may afterwards be enlarged in time to obtain full benefit from the late harvest. Hives that are intended for extracting purposes must receive attention. Those which are full of bees and have no more room for extra frames may have a frame or two of hatching brood, and all the adhering young bees removed and given to a weak colony, the empty space being filled with foundation or combs. By this means all will be in good condition to derive full benefit from the honey flow when it comes.—AN ENGLISH BEE-KEEPER.

BEE NOTES FROM DEVON.

THE year here has opened remarkably well. Fruit blossom was very plentiful, which helped the bees wonderfully; with the advent of May nearly all hives were up to swarming point. I placed supers on several of my hives at the latter part of April. Swarms were reported early in May. My first came off on the 15th, leaving a half filled section on the hive. On Thursday the 20th I had several well-filled sections sealed over ready to take off. This is about ten days later than during the Jubilee year, 1887. The heavy rain early in the spring caused the grass to grow very abundantly, and the Clover is wonderfully thick; with a few showers later on we shall be reaping a glorious harvest from this source. Taking a great interest in bee notes from other places in the *Journal of Horticulture*, I thought you would like to know how we were faring in Devon.—AMBROSE GODSLAND.

TO CORRESPONDENTS

All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," 8, Rose Hill Road, Wandsworth, London, S.W. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

Carnation Clip (H. A. D).—We have received the clip, which broke very easily on the first (and, as it proved, the last) application. Another tried in the same way did not break under much greater pressure, and you will not be surprised, therefore, that this is preferred.

Insects on Muscat of Alexandria Grapes (W. H. W.).—The Muscat of Alexandria berries are perfectly clean, and evidently have set grandly either by natural or artificial agency, and are a real pleasure to behold. We searched very carefully for the small insect, and were about giving up the scrutiny, when we came across a small white thing, which was only the empty skin of an aphid. There was nothing else, and it is needless to say that vaporisation with XL All essence will, indeed, kill the pest. The precautionary advice, "Muscat and Lady Downe's Grapes should not be vaporised," is very desirable, as both have been seriously injured in foliage in the later stages, it acting on them similarly to scorching. Though you find your "Muscat and Lady Downe's" appreciate the vaporising equally as much as do any other Grapes when insect pests are present, it is well to bear the caution in mind, as we have found great difference in the susceptibility of Vines at different stages of their growth, this being greatest in the varieties named towards the close of the stoning period, and even when ripening.

Deformed Roses (C. S. M.).—The condition of the malformed bloom is not due to insect attacks, but is the result partially of frost and partially of insufficient nutriment. We have often seen similar examples produced by plants or bushes which have not been pruned so closely as is desirable. Give copious supplies of liquid manure to obtain stronger growths, and in pruning remove all weakly shoots, relying on the stronger cut-back towards the end of March for producing blooms.

Tomato Flowers and Young Fruit Diseased (Constant Reader).—We have often seen Tomato plants in a similar predicament to that which you describe as follows:—"Flowers do not fall off freely, and fruit appears to rot. Plants are very strong, and have set what should be about 3 lbs. of fruit to a plant, and have large trusses of bloom, as many as seventy and eighty blooms on one truss. I ventilate freely, top and bottom by day and top by night, and have genial warmth in pipes day and night." The blossoms enclosed in the letter were dried and crushed in passing through the post, the corolla in some cases adhering to the calyxes, while in other instances the young fruit was quite black. On examining the latter there was seen to be outgrowths of a fungus, very slightly differing, if at all, from *Cladysporium herbarum*, with here and there very distinct fungoid bodies, identical with *Macrosporium tomati*. The latter fungus is one of the causes of depressed blackish patches on Tomatoes at various stages of their growth, and commonly at the eye. Your plants are too strong—that is, the nitrogenic elements are overpowering the mineral, and a gross sterile habit is the consequence. We advise leaving a little side as well as top air on the house constantly, only supplying water at the roots to prevent flagging, and fertilising the flowers carefully about noon with a camel's hair brush when the flowers are fully expanded. This is tedious, and not always successful, as the plants are so gorged with crude material as to develop fructifying organs very imperfectly. Sometimes cross-fertilisation from different plants acts well, but the point is to either secure higher elaboration or supply more seed-forming material, such as mineral superphosphate 37 per cent., soluble, superphosphate lime three parts, double sulphate of potash and magnesia (48 per cent. of the first and 25 per cent. of the latter, with 2½ per cent. of chlorine) two parts, mixed, supplying 3 to 4 ozs. per square yard and washing in. If used in liquid form use half an ounce per gallon of water.

Peach Trees against Wall Unhealthy (E. B.).—Though Peach trees succeed against an east wall in the southern parts of the country, it is not a good aspect for them, as the easterly winds affect the tender foliage, and blister-fungus is the consequence. Peach-leaf and shoot blister-fungus, *Ascomyces deformans*, however, is quite independent of east winds, but these produce that condition of the tender growths peculiarly favourable to its development, and of which it is not slow to avail itself. The best safeguard against the parasite is efficient protection from frost and biting winds during the spring months, this being a necessity in outdoor Peach culture and too often neglected, hence the pitiful condition of many trees against walls. Of course, you will know that removing the affected parts by degrees is the approved means of getting rid of the damage, and as warmer weather comes the trees will grow out of the disease. If you dust the trees with an advertised fungicide containing 10 per cent. sulphate of copper, such as fostite and anti-blight, it will do much to prevent the production and dissemination of spores, but it will not destroy the mycelium in the affected shoots. We have found sewage of very great service, especially with 1 lb. of sulphate of iron added to each 100 gallons some time before use, so as to secure conversion into a double sulphate with the ammonia. There is no reason whatever why you could not lift the trees in the autumn, but whether it would be advisable is matter for your consideration. If very much decrepit and bare of branches, or even weakly and gummed in these, at the lower part of the trees, it may not be desirable; but if there is a fair amount of branches, and the trees are carefully lifted and replanted, we do not see why they should not improve, as is the case in many similar instances, and they have the advantage of young trees in that the cropping would not materially be interfered with. This is often a serious consideration, and ought to have the full approval of employers before being carried out. Even if you decide to plant young trees we should do so between the old, retaining these in part until the young trees commenced bearing, it being easy to cut away limbs so as to give room for advancing. This appears to us the wiser plan under the circumstances, as the old trees being weak and dying in the lower limbs, would have these cut away, whilst the strong upper parts would afford some acceptable fruit until the new trees afforded a good supply. Dry weather certainly causes roots to descend in quest of moisture, but we do not think chalk would hurt them unless surcharged with chlorine in consequence of the excessive use of the sewage; that, however, is not likely to have taken place.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (C. S.).—1, *Mertensia virginica*; 2, *Pulmonaria officinalis*. (O. A. T.).—1, *Saxifraga muscosa*; 2, *Anchusa italica*; 3, *Saxifraga granulata* flore-pleno; 4, Probably a *Thalictrum*, specimen insufficient for positive identification. (Y. S.).—1, *Pteris longifolia*; 2, *Asplenium biforme*; 3, *Pteris umbrosa*; 4, *Adiantum gracillimum*; 5, *Nephrolepis exaltata*; 6, *Nephrodium molle*.

COVENT GARDEN MARKET.—JUNE 2ND.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	0 0	to 0 0	Lemons, oases	11 0	to 14 0
Filberts and Oobs, per 100 lb.	0 0	0 0	Plums, ½ sieve	0 0	0 0
Grapes, per lb.	2 0	3 6	St. Michael Pines, each ..	3 0	8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100	0 0	to 0 0	Mustard and Cress, punnet	0 2	to 0 4
Beans, ½ sieve	0 0	0 0	Onions, bushel	2 6	4 0
Beet, Red, dozen	1 0	0 0	Parsley, dozen bunches ..	2 0	3 0
Carrots, bunch	0 3	0 4	Parsnips, dozen	1 0	0 0
Cauliflowers, dozen	2 0	3 0	Potatoes, per cwt.	2 0	4 0
Celery, bundle	1 0	0 0	Salsify, bundle	1 0	1 9
Coleworts, dozen bunches	2 0	4 0	Seakale, per basket	1 6	1 0
Cucumbers	0 4	0 8	Scorzoneria, bundle	1 6	0 0
Endive, dozen	1 3	1 6	Shallots, per lb.	0 3	0 0
Herbs, bunch	0 3	0 0	Spinach, pad	0 0	4 0
Leeks, bunch	0 2	0 0	Sprouts, half sieve	1 6	1 0
Lettuce, dozen	1 3	0 3	Tomatoes, per lb.	0 4	0 0
Mushrooms, per lb.	0 6	0 8	Turnips, bunch	0 3	0 9

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (various) doz.	6 0	to 36 0	Genista, per dozen	6 0	to 10 0
Aspidistra, dozen	18 0	36 0	Hydrangeas, per dozen ..	9 0	12 0
Aspidistra, specimen plant	5 0	10 6	Lilium Harrissl, per dozen	12 0	18 0
Azalea, per dozen	18 0	36 0	Lobelias, per dozen	4 0	6 0
Calceolarias, per dozen ..	4 0	8 0	Lycopodiums, dozen	3 0	6 0
Dracena, various, dozen ..	12 0	30 0	Marguerite Daisy, per		
Dracena viridis, dozen ..	9 0	18 0	dozen	6 0	0 0
Erica, (various) per dozen	9 0	18 0	Mignonette, per dozen ..	4 0	6 0
Euonymus, var., dozen ..	6 0	18 0	Myrtles, dozen	6 0	9 0
Evergreens, in variety, per			Palms, in var., each	1 0	15 0
dozen	4 0	18 0	" (specimens)	21 0	63 0
Ferns in variety, dozen ..	4 0	18 0	Pelargoniums, per dozen ..	9 0	15 0
Ferns (small) per hundred	5 0	8 0	" Scarlet, per doz. ..	4 0	8 0
Ficus elastica, each	1 0	7 0	Rhodanthe, per dozen ..	4 0	6 0
Foliage plants, var. each	1 0	6 0	Spiraea, per dozen	6 0	9 0
Fuchsias, per dozen	6 0	9 0			

Bedding plants and roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches ..	1 6	to 3 0	Marguerites, 12 bunches ..	2 0	to 3 0
Arum Lilies, 12 blooms ..	2 0	4 0	Mignonette, dozen bunches	3 0	6 0
Asparagus Fern, per bnch.	2 0	3 6	Myosotis, dozen bunches ..	1 6	2 0
Azalea, per dozen sprays ..	0 6	0 9	Narciss, (various), dozen		
Bluebells, dozen bunches ..	1 0	1 6	bunches	1 3	4 0
Bouvardias, bunch	0 6	0 9	Orchids, var. doz. blooms	1 6	12 0
Carnations, 12 blooms ..	1 0	3 0	Pæony (English), Pink,		
Cornflower, dozen bunches	9 0	12 0	dozen bunches	9 0	15 0
Eucharis, dozen	4 0	6 0	Pæony (English) Red,		
Gardenias, dozen	2 0	4 0	dozen bunches	4 0	5 0
Geranium, scarlet, doz.			Pæony (French), per bunch	0 6	0 9
bunches	4 0	6 0	Pelargoniums, 12 bunches	4 0	8 0
Iris (various), doz. bunches	9 0	18 0	Polyanthus, dozen bunches	1 0	2 0
Lilac (English), per bunch	0 6	1 0	Pyrethrum, dozen bunches	1 6	3 0
Lilac, White (French), per			Roses (indoor), dozen ..	0 9	1 6
bunch	8 6	4 0	" Tea, white, dozen ..	1 0	2 0
Lilium longiflorum, 12			" Yellow, dozen (Niels)	1 6	4 0
blooms	2 0	4 0	" Red, dozen blooms ..	1 6	4 0
Lily of the Valley (French),			" Safrano (English), doz.	1 0	2 0
per bunch	1 0	1 6	" Pink, per dozen	4 0	6 0
Lily of the Valley, 12 sprays,			Smilax, per bunch	4 0	5 0
per bunch	0 6	1 0	Tuberose, 12 blooms ..	1 0	1 6
Maidenhair Fern, per dozen			Tulips, dozen bunches ..	2 0	6 6
bunches	4 0	8 0	Wallflowers, dozen bunches	1 6	4 0



THE DAY OF SMALL THINGS.

THINGS neglected, forgotten, or misused. Large matters receive attention, but the little things are left for anyone to do, or, rather, no one. What we want to do is just to point out in a very friendly manner a few little points worthy of the attention of every farmer. We know by experience it is most difficult to see to every little item that goes to make up the day's work; to watch that every man and boy is earning his full wage, to see that nothing is misused or spoiled.

The first thing we turn our attention to is the implement shed. No well-equipped farm is without many and costly implements, and on homesteads where the buildings are plentiful there should be no difficulty about housing implements not in immediate use. We remember on a large farm of our acquaintance there literally was no accommodation whatever except a corner in the stack yard, and the occupier had to take advantage of any bit of shelter afforded by a high hedge or straw stacks. This state of things had

existed during the lives of two tenants; the third man, who was of a very orderly turn, persuaded his landlord to remedy the evil, to the great benefit of the implements and to the general appearance of the premises.

Being on the subject of implements, shall we suggest a coat of paint is not costly, and a wonderful preventive of decay? Here, too, we exercise another little economy. We use long carts, with open sides, for harvest; they can carry a tremendous load, but lie idle except during hay and corn harvest. Wheels do not improve with drought, so off they come from the long cart, and are used for the ordinary farm vehicle, usually devoted to manure leading and general work.

In the stable, too, the fumes of ammonia from the horses is very destructive to gearing. Can the lads only be persuaded to walk a few steps to a rough saddle-room and hang each article carefully up, harness would have a much longer life. The same applies to an occasional cleaning, and oil makes leather supple, and causes the texture to resist the action of water better. "A place for everything and everything in its place." How annoying it is to see rakes and forks tossed about anywhere and anyhow. There are boys, and even men, who will never think of moving one step out of their way just to put a fork in a corner or hang up a rake.

On a farm there is a constant need for repairs (in woodwork). Troughs, tumbrils, gates, trays—i.e., hurdles, and a thousand other things too numerous to mention, are always needing "the stitch in time." If you are always sending down to the wheelwright's, whatever else he does, of one thing you are certain—a pretty long bill at Christmas.

We can remember in the days of long ago the carpenter's shop on our farm, and how our father with the aid of a clever foreman did all the repairs himself on wet days. We never bought a gate. They were all home made, and painted red to give a touch of colour to the landscape. Ah! now we touch another point. No gate lasts out half its natural life if badly hung—it knocks itself to pieces, and soon pulls the post out of plumb, and is a constant source of aggravation to every user.

There was a time when a farmer's great difficulty was to get all his straw trodden down into a semblance of manure. Those halycon days are fled, and yet we doubt if we have got over their effects. It is most difficult to get the ordinary farm labourer to economise either his straw or even hay, and how few will take the trouble to weigh out cake or other feeding stuffs. There is so much rule of thumb or guess work, and it is most of it in favour of the stock rather than the master. Far be it for us to wish to stint any live stock, but the hand-food they get is very valuable and costs gold, and it must not be treated lightly.

Have you ever, kind reader, seen in a neglected corner of farm premises piles of old wood? The remains of once fences, aged gate posts, hedgerow timber, not good enough for market? Have you observed how the heap unmolested grows, and how at the same time costly coal is used for steaming, threshing, and house purposes? A steam engine in conjunction with a circular saw for a day will provide out of that heap of waste a noble pile of excellent firing. Have you, again, ever seen in a dry season the water cart hard at work providing for thirsty stock? And have you, again, on the same premises on a winter's day heard the drip, drip from the eaves of all the buildings?

A friend who bought a property on the high wolds where water was always scarce, before he did a brick of building constructed an immense cistern, rightly assuming that with proper management winter surplus should help out summer drought.

Has anyone ever seen the leakage of valuable liquid manure from crewyard or cowhouse? The storage of Potatoes, Swedes, or Mangolds where every passing hen could pick her fill? How about that last load of engine coal, thrown in a corner? If not an actual temptation to a poor man, at any rate it does not increase exposed to wind and weather. Were all the thatch pegs carefully put aside ready for next harvest when that Wheat stack was stripped for threshing? and was the cord used in tying the sheaves laid aside for Potato and corn bags, or allowed to go in among the straw, indigestible as food, and not desirable as bedding?

It seems an easy matter to steam Potatoes (we mean on a large scale for stock, not the family tureen), but the generating of that steam may be made a cheap or costly affair, depending on the common sense, or want of it, on the part of the steamer—is there such a word? It is just the same with steam power used in any

department of farm work. There used to be men who perambulated the country and mended all sacks; it is a long time since we saw one. Either the sacks go unmended, or new ones are bought or hired.

Just two more points and we have done. Is it absolutely necessary to have such immense hedges in arable fields? Would not a strong well-grown quickset fence be even more effectual than that mass of straggling briar, bramble, grass and rubbish now dignified by that name? True, the country lanes might not be so picturesque, but economy before beauty, my friends. What, too about "garings" or headlands? Remember land so often trodden on is practically unworkable, and therefore unprofitable. There must be a little space left for Turnips, but let it be as little as possible. We cannot afford to lose an atom of crop; letting alone the unsightliness, it is the contrast between a fine Swede crop garnished with an edging of very inferior White Turnips.

WORK ON THE HOME FARM.

The last ploughings are completed, and the main crops of Turnips will be sown as soon as rain comes. If sown with the soil in its present dry state we doubt whether the seed would germinate; some of it might, but it is a bad thing to have uneven germination of Turnip seed; insect pests have more time in which to work destruction, and the labour of hoeing and thinning is much increased.

The land is now becoming decidedly warm as the result of the bright sunshine, and a good day's rain would put it into such fine condition that the seed would soon be up after sowing, and be much more satisfactory in the end than if sown now and coming up piecemeal. This has been the case with Mangold, which promises to be very patchy, the soil having been dry and rough in some places.

Prospects of winter fodder are becoming gloomier day by day. We hear of farmers beginning to stock their meadows, the grass being sorely needed at the present time; but how about the winter? It is hardly likely that Wheat straw will be a heavy crop, though the grain may be, and Barley and Oats must be very short in the straw unless the weather turns topsy-turvy and remains so until August. Another week of drought will practically ruin the prospect of even an average supply of fodder. Naturally prices are rising, and we hear of £155 being made of a stack for which only £70 was bid last autumn.

Potatoes are growing fast, and horse-hoeing progresses apace. The hand hoe will soon have its turn amongst them, the spring corn being now about looked over.

Ewes are being washed ready for clipping, and some people are clipping already. It is time the wool was off, but the winds have been very cold and might give the animals a chill, resulting in downfall, a most dangerous complaint to the sheep. There has been no trouble with maggots as yet; but it is maggot time, and for that reason the wool would be better off the sheep's back. Shepherding is so much easier.

OUR LETTER BOX.

Milk Fever (D. R. D.).—You do quite right in penning your in-calvers at least three weeks before calving, but you do not appear to give a purgative, which is highly necessary. Epsom salts and powdered aloes make the best mixture. With a cow on dry food or naturally costive nearly 1 lb. salts and from 2 to 4 drachms of aloes make a dose. One dose a fortnight before calving, a second two or three days before, and a third at, say, two or six hours after calving. Calve, if possible, in a fresh cow house, or at any rate limewash. We will treat this subject more exhaustively in an early number of the Journal.

METEOROLOGICAL OBSERVATIONS.

OAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1897.	May.	Barometer at 32° and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
			Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
		Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday . . .	23	29.827	52.3	47.2	N.E.	57.4	68.2	40.8	114.0	35.2	—
Monday	24	29.902	49.2	47.1	N.	57.9	61.4	45.1	110.9	40.2	—
Tuesday	25	29.844	54.1	48.8	S.W.	57.0	71.6	42.7	121.2	36.7	—
Wednesday ..	26	29.558	55.6	50.6	S.W.	57.6	57.7	49.9	79.1	44.9	0.064
Thursday ..	27	29.342	54.9	50.6	S.E.	55.9	64.2	48.9	109.7	43.0	0.103
Friday	28	29.359	53.5	49.6	S.E.	56.6	59.2	46.1	102.9	39.0	0.028
Saturday ..	29	29.460	58.7	51.4	S.W.	55.1	62.2	48.1	93.8	42.0	0.090
		29.649	54.0	49.3		56.8	63.5	45.9	104.9	40.1	0.290

23rd.—Bright and sunny all day; clear night.

24th.—Overcast early, gleams of sun about 11 A.M., and bright afternoon.

25th.—Generally cloudy, and hazy and close, but occasional sunshine. Spots of rain at 1.50 P.M. and in evening.

26th.—Overcast throughout; almost continuous slight rain or drizzle, from 8.30 A.M. to 1 P.M., and slight showers later.

27th.—Cloud, sunshine and showers; cloud preponderating in the morning and sunshine in the afternoon. Rain from 9.30 P.M. to 11.30 P.M.

28th.—Alternate cloud, showers, and sunshine. A little hail at 1.20 P.M.

29th.—Occasional sun early and about 4.30 P.M. Rain from 0.30 P.M. to 3 P.M.

The drought broke on the 25th, having lasted almost three weeks. Temperature near the average.—G. J. SYMONS.

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Award of Merit, R.H.S., and First-class Certificate, N.C.S., 1896. Strong Plants in Pots, now ready, 7/6 each.

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Journal of Horticulture.

THURSDAY, JUNE 10, 1897.

PRODUCTIVE AND UNPRODUCTIVE TREES—BUD AND GRAFT INFLUENCE.

EXAMINING our Gooseberry bushes yesterday we found some well furnished with fruit and others with scarcely any, and this quite irrespective of sorts or of position. An old gardener near by said that the barren ones were struck from suckers (which grow round the stalk), and the fruiting bushes from the ends of fruit-bearing branches. I have myself had some suspicion of this before—viz, as in the case of Strawberries raised from barren plants. Can you tell me if there is good ground for the old man's theory? In many large nurseries they raise bushes from "suckers," which, however, is no proof at all.—T. W. BEATON.

[This letter opens an important subject, to which, perhaps, scarcely sufficient prominence has been given in the horticultural Press. This presumably means that careful tests have not been made in experimental gardens on the influence which buds and growths exert on the plant, bush, or tree of which they are chosen (if chosen at all) as the foundation. We have recently glanced over a remarkable Report by the Duke of Bedford and Mr. Spencer Pickering of the experiments conducted at what may be termed the Scientific Fruit Farm established by the Duke on his Woburn estate. We do not know how many scores or hundreds of experiments are enumerated in the Report (which has passed out of our hands), but we do not remember one bearing on the subject of growth characteristics, or bud variation, as predisposing to floriferousness or the reverse; yet it is reasonable to suppose that such experiments would be at least as likely to issue in instructive practical results as are several of those in operation, important as these may prove to be.]

We certainly think there is ground for the "old man's theory" relative to the cause of the unfruitful Gooseberry bushes. That the character of the cutting is largely represented in the resulting plant we think many, if not most, experienced gardeners know, and they select cuttings accordingly. If they covet robust growth and comparatively few flowers, they choose robust cuttings from leading growths; if they

prefer plants of bushy habit and floriferous, they select less vigorous side growths for producing them.

Rose growers, amateur and professional, who have been close observers for many years, we imagine know that buds taken from (a) enfeebled growths, (b) robust flowerless stems, and (c) sound healthy floriferous parts have differing results, corresponding with the inherent character of the stems from which they were taken. If this were not so, why should they be so careful to select the "best buds" obtainable?

Nurserymen know quite well that for producing free, upright growing Conifers and trees they must choose their scions from upright or terminal growths, because these "go ahead," whereas stunted side growths produce "dumpy" trees, with a tendency to premature flowering. We think also that old grafters of fruit trees know the influence that different kinds of scions exert on the continuation growth of those scions, and select accordingly. Those from luxuriant growths of non-fruiting trees are less likely to be so soon productive as others well chosen from fruitful trees and branches, the stocks and soil being the same in each case. We apprehend it is not difficult to produce mere stunted pigmy trees overlaid with fruit by the choice of buds alone, and other trees of the same variety on the same kind of stock by the side of them growing "like Willows." In a small experiment we have found that this was so exactly in that particular instance. We have also found, like Mr. Beaton, the unwisdom of perpetuating Strawberries from barren plants.

In raising Gooseberry bushes we should not take cuttings from robust sucker growths which had not produced flowers, as we should fear that such cuttings would tend to produce slow or sparsely fruiting trees. Nor should we choose the extreme tips of heavily fruited branches, at least without much discrimination, as many of such parts are too enfeebled and apt to produce weakly stems and leafage so tempting to the destructive mite known as red spider. Cuttings from sturdy bearing shoots on which the leaves have been fully exposed to the sun are such as we prefer, removing the tips down to the "best buds" before the cuttings are inserted.

The subject of the character of growth and buds influencing subsequent growth seems to have received more attention in America than in England; and Mr. L. H. Bailey, of the Cornell University, records in his book, "The Survival of the Unlike," lately referred to in these columns, that "every farmer's boy knows the reddest and earliest Apples grow on the uppermost branches, and his father always tells him that he should never select scions from the center or lower part of a tree." In the old country "every father" who may have fruit trees does not give his son such good advice, because only comparatively few fathers have themselves been taught the significance of the lesson.]

CONSERVATION OF SOIL MOISTURE.

MULCHING.

MOST welcome is the long-expected rain; though in some districts it has only partially effected its purpose, yet it has refreshed vegetation greatly, and it behoves us to make the most of what has fallen by every means in our power, lest another period of drought should be experienced. The long continuance of the parching easterly winds had a disastrously drying effect upon some soils. Fortunately heavy dews have helped to refresh the foliage of trees and plants at night and early morning, but when these have been followed by bright days, with strong winds sucking the moisture out of the leaves, the good effects of the dew have been of short duration. Some bush fruits, especially Gooseberries, have suffered the most, and the crop being generally so short one cannot afford to lose any more; yet the berries have fallen by scores in some places, and they do not appear to be much worse on light soils than on heavy ones—at least, as far as I have observed, there is little difference. The drying wind produced an immediate effect on the foliage and growth, against which the roots were unable to fortify the plants without further aid than the ordinary soil stores will supply. I have to deal with a heavy soil which is of a most peculiar nature, as it cracks greatly after a

few days drought has been experienced, and constant hoeing, while reducing the tendency considerably, yet does not suffice to prevent the cracking assuming a serious form. All who have had much experience are most reluctant to commence supplying water to plants of any kind out of doors, for when once begun it must be continued, and not sparingly either, or the mischief resulting is greater than the remedial effects. The constant watering of large numbers of plants in the flower or kitchen gardens means an enormous increase of labour, and there are few establishments where this would not cause a serious interference with pressing routine work.

Much can be done at the present time to minimise such labour, and one of the readiest means is securing a thorough surface tilth by means of the hoe. The use of this instrument for surface stirring is beneficial even in dry weather, but there are some soils upon which it can scarcely be used with advantage in periods of drought, because the superficial layers become so hard and baked that the hoe will make little impression. A moderate rain, however, renders it workable with ease, and the operation should be pushed forward rapidly now amongst growing crops of all kinds. This refers merely to stirring soil to the depth of about 1 inch, but where it can be done without injury to the roots of plants light forking to the depth of 4 or 5 inches is even more beneficial, particularly as regards retaining the moisture in the lower portion of the soil for trees or deep rooting plants. For the purpose in view there is a limit to which soil stirring can be carried with practical benefit, and it has been found that beyond 6 inches no appreciable effect is produced in the conservation of moisture, and for all ordinary crops 4 inches is the extreme, while stirring even half an inch in depth produces a marked effect.

The capacity of different soils for water varies greatly, as also do their powers of retention. For example, it has been found by experiment that while 100 parts of sand will absorb 25 per cent. of moisture, yet out of 100 lbs. of water so absorbed there evaporated in four hours, at a temperature of 66° Fahr., no less than 88 lbs. In the same way, loamy clay absorbed 40 per cent. of moisture and lost 52 lbs. in the same time as the above, heavy clay absorbing 61 per cent. and losing 35 lbs. of moisture. But the most striking difference is shown in the case of rich garden soil and humus, the former absorbing 96 per cent. and losing 25 lbs. of water, the humus taking up 181 per cent. and losing only 21 lbs. of water in the four hours at the temperature named. The condition of the soil, therefore, which will most readily help in the conservation of moisture is a well-worked surface containing an abundance of humus—i.e., decayed vegetable matter—as a relatively larger quantity of water is absorbed and a smaller proportion evaporated.

It is evident that, for the above-named reason, farmyard or stable manure would have a better effect in increasing the water-holding power of the soil than artificial manures; but to prove this point some experiments were undertaken at Rothamsted, which showed the effects conclusively. The observations were made in a wet winter, when samples of soils treated with farmyard and artificial manures were taken at different depths, and the amount of water carefully determined with the following results:—

Farmyard Manure.				Artificial Manure.			
		Per cent.				Per cent.	
1st—3 inches of soil	39.7	1st—3 inches of soil	...	...	26.5
2nd "	"	...	35.6	2nd "	"	...	22.9
3rd "	"	...	28.9	3rd "	"	...	20.6
4th "	"	...	24.0	4th "	"	...	24.7
Average	32.1	Average	...	...	23.7

It is interesting to note that the superficial layers only were influenced by the different manures as regards their water-holding properties, and at a foot depth the effect was practically inappreciable.

Mulching is a time-honoured practice to aid in the preservation of soil moisture, and its utility has been so repeatedly proved in a general way that it is not surprising it should be so commonly adopted. Much advantage accrues, in fact, from applying a good dressing of short litter—straw, grass mowings, or any similar substance around trees or plants at this time of year, especially after rain. Nor is a heavy mulching needed if the soil has been well worked, for it has been proved by comparative experiments that a very slight application of this kind to the surface will have a greater effect in insuring the retention of water than stirring the soil 4 inches deep, and a mulching 1 inch in depth has almost double the effect of soil stirring alone.

If plants or trees are weakly the mulching can take the form of a manure dressing; or what is even more effective in some cases, the manurial aid can be given in liquid form. After a rain like we have had is the best time for such assistance; it is almost useless, and certainly very wasteful, to supply liquid manure when the soil is parched with drought. It is better even to give a liberal supply

of water first, to be followed by the manurial liquid, than to attempt giving the latter while the soil is dry. Another point, too, that is in danger of being overlooked is the importance of supplying liquid manure in a weak state and frequently, rather than in a strong form and more seldom. Far greater satisfaction results from such treatment, as the plants can appropriate the food constituents more readily, and there is not the risk which arises from strong applications.—PRACTITIONER.

PLANTING CELERY.

CELERY is a most important kitchen garden crop, and requires special attention during the early stages of cultivation, so that growth may be steady, regular, vigorous, and healthy. The plants should receive at all times abundance of light and air for the foliage, with constant moisture to the roots. Without a free supply always available to the numerous roots, the food in the soil and manure, however adequate, cannot be made sufficiently soluble and usefully appropriated. Water itself contains some food the plants want; but in addition to supplying this, it has the great function of rendering soluble the necessary salts required for the sustenance of Celery as well as other plants. Celery is a great absorber of moisture, hence it is essential that due provision should be made to meet this demand.

The importance of moisture commences to be apparent when the young plants have been pricked out from the seed pan or boxes. The roots increase rapidly in a suitable medium, and the plants grow freely. Growers of Celery are aware of this, and provide a rich, light, and moist root run, such as the young plants can revel in. The half-spent hotbed surface, with a few inches of light rich soil, is usually a favourite place where seedlings are prepared for the final planting. A layer of manure on a firm bottom in a frame and over that soil, the bed being near the glass in every case, is also suitable. Plants having thus been cared for during the preceding month, are ready for the trenches in June.

Later sowings may receive more hardy treatment, but the soil for them ought also to be rich and moist. This, however, can be insured by digging in, previous to pricking out, a liberal dressing of decomposed manure.

In selecting a site for growing Celery a situation may be chosen where the ground is naturally rather poor, but light in texture rather than heavy and too retentive of moisture. Light and poor ground may be enriched for the growth of the Celery, but soil retentive of moisture to an undue extent is not readily drained in a short period. The situation should be open, unobstructed light and a free circulation of air being essential in promoting a sturdy growth which can endure the vicissitudes of an ordinarily severe winter.

The best method of planting Celery—except, perhaps, under special circumstances—is in single or double trenches 4 feet apart. They can run in a N. and S. direction. The width of the trenches may be 18 inches for double rows, and 15 inches for single. The soil ought to be taken out to a depth of 15 or 18 inches, filling in about a foot of manure. This should be well decomposed cow manure, or general farmyard manure well decayed. If the subsoil is good a portion of that may be mixed with the manure in digging the latter in; but some of the better material thrown out on the sides must also be employed. Deep trenches with sheer perpendicular sides are not now tolerated. Trenches comparatively shallow when their preparation is complete are the rule. They are warmer, more exposed to light, and can be watered to better effect. Their improved appearance is also a recommendation.

Before lifting the plants for final planting in the trenches they ought to be well watered, or a period selected when thoroughly moist. Dull weather is to be preferred for planting, and each plant must be raised from the bed with a good ball of roots and soil, an easy matter when proper methods in preparing the plants have been followed. The distance between the plants may be in single rows a foot if large sticks are required. Ten inches asunder is a useful distance both for single and double rows, a foot distance in the latter not so frequently being employed. Trim off all small leafstalks and short suckers appearing at the base. There will be less trouble from them afterwards.

Plant just a little lower than previously, forming the holes to receive the plants of ample depth and width. Render the soil firm about them, and preserve them from flagging by planting quickly. The drying influences of the air soon abstract the moisture from the soil about the roots should the plants be exposed for an extraordinary length of time. Hence it is not desirable to lift many at a time. Whether water will be required immediately after planting or may be deferred depends on the weather and the state of the soil.—E. D. S.

POINSETTIAS.

As a plant for winter decoration *Poinsettia pulcherrima* stands without a superior. Its bright scarlet bracts are practically indispensable for the adornment of dining table and drawing-room, and coming at a time when flowers are scarce an additional charm is added. No other inmate of the stove or greenhouse possesses such a brilliancy of colour, or one which shows to better advantage under artificial light. Used in conjunction with Roman Hyacinths or other white flowers the contrasts blend in an harmony that is at once elegant and pleasing. To dwell long on these points, however, is but to repeat the plant's oft-sung praises, and when we think of them and their usefulness it strikes us as being somewhat remarkable how rarely we see *Poinsettias* really well grown. It is one thing to obtain plants with small straggling bracts surmounted on almost leafless stems, and quite another to have them nearly a foot across, compact in form, and with stems clothed to the pots with healthy foliage. These are the specimens that delight the decorator and do credit to the grower. There is no secret in the method of their production. It is the old, old story—suitable conditions of culture and close attention to detail, and in this short phrase we have the law of successful gardening.

Just now the process of propagation is in full swing. During the early months of the year the plants have been in a resting condition. In most gardens the dried sticks have been shaken out of the old soil, repotted, and are now pushing numerous side growths under the genial conditions of forcing house or pit. Cuttings inserted now and grown in a cool house or frame close to the light, make dwarf sturdy plants, warranted to carry creditable bracts in the winter. They are, however, somewhat fastidious about rooting, and have a great tendency to damp off. A frame in the propagating pit is the most suitable place for them, and the cuttings should be formed of the short sturdy growths, preferably with a heel of the old wood attached. It is well to let the cuttings lie for half an hour before inserting them, in order that the wounds may be dried somewhat, after which they should be placed singly into thumb pots, watered, and plunged in a brisk bottom heat. For the first few days they require a dense shade during the hours of sunshine, gradually inuring them to the light.

As a rule the insertion of cuttings formed of long-jointed, sappy growth will only result in failure; but if proper, well-matured, and short-jointed growths are chosen they will root in ten days or a fortnight without losing a single leaf. It is easy to tell when the tiny plants have commenced growing at which stage they should be removed from the hotbed and kept close to the light in order to prevent drawing and lanky growth. Potting as required must not be neglected, otherwise if the plants are allowed to suffer for want of water the lower leaves assume a yellow and sickly appearance, which is a condition one naturally wishes to avoid.

The treatment of old plants differs somewhat. Where required for room decoration it is often desirable that they should be tall, hence the necessity of growing them in heat. After the old plants have been potted and growth has commenced it is best to take off the upper shoots for forming cuttings, leaving the lower to develop into bracts. By this means it is possible to obtain plants of a bushy character, having three or four or even more of their bright clusters of scarlet tops. Light is the principal requirement, as the growth must be well matured. *Poinsettias* are often grown in stoves amid other plants and under creepers, but the results are invariably unsatisfactory, as the stems are elongated and sappy, possessed of insufficient stamina to produce and mature large heads. Growing the plants in heat has its advantages and disadvantages. Fine bracts may be obtained in this way, and one of the best collections I ever saw in this respect was grown in a house of stove temperature and the pots plunged in a bed of leaves. The plants were tall and strong, and in the house presented a fine appearance, but when cut or taken out in the pots the leaves felt the change and turned flabby and limp.

The question is sometimes asked how to grow dwarf plants having good bracts, for after all the *Poinsettia* in this condition is the most serviceable. In the first place they must be grown cool, in order to insure dwarf habit and green leathery foliage; secondly, they require abundance of light, hence the necessity of growing them close to the glass. It is the custom of some growers to allow their plants to start naturally at this time of the year, keeping them in cold frames till cold weather sets in, then removing them to a warm structure for flowering. Old plants may be so manipulated that, in conjunction with free dwarf habit, three or four good bracts may be obtained on a plant. Those rooted in the spring in the manner suggested only produce one bract each, but usually these are so much finer, and the plants so well furnished with leaves, that it is advisable to depend chiefly on early summer propagation, particularly if dwarf specimens are required for decoration.

After the young plants are rooted they should be removed to

cold frames, and will be all the better if the pots can be plunged in some suitable material which conserves the moisture. Thus the risk of dryness at the roots is diminished, and there is less fear of the lower leaves dropping or turning yellow. As rooting increases the plants should be removed into 6 or 7-inch pots, these sizes being large enough for the main portion, though later-rooted plants may be confined to 4 and 5-inch. An ordinary mixture of loam, leaf mould, and silver sand will be found suitable, and in the case of the largest pots it is a good plan to leave sufficient room at the top for a dressing of rich compost when the plants are forming their bracts, as this increases the size and improves the colour considerably. On bright sunny afternoons the plants should be syringed and the frames closed, thus changing the atmosphere of the structure into that of a miniature stove, by which means the sun heat is conserved, and a genial condition suitable to the welfare of the plants is obtained.

Watering is an important matter, as the foliage will turn yellow from either drought or excessive moisture. Both extremes must therefore be avoided, as the losing of leaves robs the plants of half their beauty. When the pots are well filled with roots liquid manure may be used with advantage; and if soot is used in the formation of this it assists greatly in giving a dark green hue to the foliage.

On the approach of cold nights the plants must be removed from the frames, and given the accommodation of a warm house, growing them close to the light, and avoiding a sudden change into a dry arid atmosphere, otherwise the foliage will inevitably suffer. To be successful in the cultivation of this useful winter plant a few simple rules should be laid down, and strictly adhered to. The plant wants no coddling, but will not brook neglect. Close attention is the chief factum, and this given the cultivator may be rewarded at Christmas time with an abundance of rich scarlet bracts, suitable for the beautifying of conservatory or drawing-room.—G. H. H.

HORTICULTURAL HISTORY NOTES.

ALONG WESTERN MIDDLESEX.

SEVERAL circumstances lead us to think that in what some folks call the good old times, when daily newspapers were small and expensive, when gardening could not boast of a single journal, gardeners of all sorts must have been very sociable with each other, or otherwise they could not have gleaned the information they did on various points. No doubt they had to make efforts to overcome the stiffness which characterised English life till quite recently. Had it not been thus there would have been a serious bar to the distribution of new plants and varieties, which must otherwise have only been known within a narrow circle. Again, a country visitor, wishing to get an insight into London horticulture, would have been badly off had he been obliged to limit himself to the few public gardens accessible. Through friends he could enter various private grounds to which gardeners were admitted by favour, or even, occasionally, promiscuous visitors. Of these at one time there were many about the metropolis. Some of them have disappeared; probably of those now remaining the owners have to exercise more caution than formerly in admitting strangers, lest a privilege should be abused.

Looking back fifty years ago, no farther than that, to the period when Victoria was still a youthful Queen, and busy not only with State affairs, but the cares of a young family, the visitor to London found most of its attractive gardens upon the western side. Having examined the nearer of these, going, of course, to Clapham in Surrey, which, even till 1845, was famous for its gardens and park-like demesnes, also viewing those of Kensington and Hammersmith in Middlesex, he would naturally follow the valley of the Thames, seeking out gardens along its green banks or upon the higher ground at no great distance westward.

Leaving Holland Park on the south, with its goodly gardens and historic trees, crossing the crown of Notting Hill, the stroller may pass Shepherd's Bush, suggestive of the time when numerous flocks of sheep grazed on the fields hereabouts, and traverse the road to Acton and Ealing. That the name of Acton meant "Oak town" there is no doubt. The place was once within, or on the edge of, an Oak forest. In this century it served as a refuge for some market gardeners, when the nearer suburbs became a prey to the builder. Beyond it is Ealing, now fast losing its rural character. At first the name was "Yelling," of uncertain meaning, a locality which, both in soil and atmosphere, is very favourable for horticultural pursuits. Visitors to the neighbourhood half a century ago used to discuss whether Ealing Park or Gunnersbury was the more to be admired; the latter being chiefly laid out by Kent, having 70 acres in its grounds originally, while Ealing Park, somewhat less, showed the handiwork of Brown, improved by Repton.

When Orchids were comparatively novelties in English gardens,

Gunnersbury was famous for the display it made of these species. The large Orange trees grouped in the orangery were also an attraction; there were two very tall Tree Ferns, and an old, large Liriodendron. A cluster of venerable Cedars attracted notice, round the trunks of which were circular beds of Ivy, which also encircled other trees, and this practice was copied elsewhere by some who visited Gunnersbury. The lakes were contrived by Kent so as to afford good prospects of land and water, while they had a fine fringe of trees. Though not horticultural, a collection of sandstone figures in a temple near the circular lake were always sought out. They exhibited a series of scenes in the "Beggar's Opera." The principal flower garden was circular, surrounded by trelliswork, an outer circle having assorted climbers, the inner one Roses. Numerous stoves and forcing houses had a large display of exotics.

Ealing Park had at one time the honour of taking off prizes at nearly every flower show held in the neighbourhood of London, no trouble or expense being spared. The conservatories were large, and most of the newer species or varieties could be seen to advantage. The ornamental water was placed in a dell, around it evergreens occupied the rising ground, also rockeries and banks of Fern; an opening was made on the side of the park, to afford a view. What were called the Italian walks gave a reminiscence of the doings of "Capability Brown," who planned a lawn in front of the house, which was planted chiefly with Conifers, and from which avenues branched off; one of these had fine specimens of Cupressus macrocarpa. Near the mansion Garrya elliptica was conspicuous with its flowers, and Arbutus procera with its late fruit. Most of the flower beds at Ealing Park used to be placed in grass.

At a more recent date, Ealing Dean has had some fame through a possessor of the familiar name of Smith, a large grower of Cyclamens and Poinsettias; his Begonias and Solanums have also been widely distributed. Spring-flowering plants, such as Primulas and Pansies, have attracted many Londoners to the Ealing district. Near Acton, Mr. Reeves has made a speciality of Tulips, importing and growing many thousands yearly. Other nurserymen still hold their ground between Ealing, Brentford, and Turnham Green in spite of modern "improvements."

Going higher in the course of the Thames, after Kew had been duly visited, a natural curiosity would lead a gardener fifty or sixty years ago to seek admission to Sion or Syon House, of which he would have heard as a notable establishment, linked historically to the ducal families of Northumberland and Somerset. It was one of the places where the skill of Phillip Miller, so long connected with the Apothecaries' Chelsea Garden, was seen in operation. Long before his time there existed a botanic garden at Syon, when England had very few of these, and the Duke of Somerset took some trouble to procure exotic species. One of the heads of the establishment was a James Meader, afterwards gardener at St. Petersburg to the Empress Catherine, the author of a book he called the "Modern Gardener," or "Universal Calendar." He was also given to verse writing of a satirical character, and in his effusions frequently attacked both friends and foes.

The flower gardens at Syon House had some good Roses and many interesting herbaceous plants, while on the lawns were choice specimens of several of the rarer shrubs; but the houses presented the principal attraction. Built during a period when metal roofs were little known and much suspected, the numerous forcing houses, constructed of iron with copper sashes, stood the test of time well. These were placed in the kitchen garden department, some of them being set apart for tropical fruits. A special house was devoted to the Victoria Regia and species of Nelumbium. It used to be the custom at Syon to maintain a rather high temperature with an abundance of moisture, so that plants fruited there which did not elsewhere; and to some extent these houses initiated a change in this respect. The grand series of conservatories were erected in the form of a crescent, the centre rising to a high dome, and the end houses also being loftier than the sides, the structure consisting of stone combined with iron and copper.

Twickenham is hardly to be styled a London suburb, yet its memories connect it with the history of the metropolis, especially, too, with Bacon, the father of modern natural science, who once owned the park; "a pleasant place to study in," said he, and doubtless it was. A variety of accounts have been given concerning the first cultivation of the Weeping Willow in England, but the most probable statement is that the original tree was received from the Euphrates by Mr. Vernon, occupier of the park in the reign of George II. Near Twickenham a private botanic garden was started about 1789 by Mr. Swainson; he had some flowers, but aimed principally at cultivating every tree and shrub which would flourish in our climate. Fifty years since or so the garden of Cambridge House, just above Richmond Bridge, was visited for its collection of stove plants and Pelargoniums. It had an orangery, and the grounds contained many fine old trees.—J. R. S. C.



ODONTOGLOSSUM CRISPUM STARLIGHT.

THE number of *Odontoglossums* staged at the recent Temple Show was very considerable, and it is perhaps needless to add that many were of exceptionally good quality. The majority of the plants staged were forms of *O. crispum*, and amongst these the variety *O. c. Starlight* (fig. 96), staged from Mr. R. Brooman White's famous collection at Ardarroch was quite one of the choicest. The handsome spike carried several beautifully formed flowers of most distinct colour. The sepals are deep rose profusely spotted with brown, while the petals are white suffused with rose, and spotted similarly to the sepals. The lip is white, sparsely spotted with chocolate, and the throat is yellow. The Orchid Committee of the Royal Horticultural Society awarded it a first-class certificate.

ORCHIDS AT THE TEMPLE.

EXCELLENT as are the exhibitions annually held at the Temple, probably at no other show has there been such an array of good things in the way of Orchids. The number shown perhaps was not greater than other years, but the quality was certainly better than ever. *Cattleya Mossiæ* was in grand form. Prominent was the lovely pure white *C. M. Wagneri*, the most chaste and pure of all the labiata section of *Cattleyas*. The only spot of colour on this superb form is a yellowish area about the throat, beautiful in itself and serving to enhance the purity of the outer segments.

There was also a grand plant of *C. M. E. Ashworth*, a very distinct variety with a decided tint of blue on the lip. *Odontoglossum Queen Victoria* is a grand acquisition, the immense flowers having prettily flushed sepals, petals and lip, all having huge blotches of bright chestnut red. The plant had one spike carrying eight of these fine blooms, and was most deservedly awarded a first-class certificate. It was a happy idea to show *Phalaenopsis intermedia Portei* and *P. i. Brymeriana* together, the difference between the two being very marked.

The lovely and striking *C. callosum Sandersi* from Baron Schröder was in splendid order. The blossoms of this superb plant have lost all trace of purple, and are composed wholly of green and white in soft and beautiful combination. The splendid hybrid *Lælio-Cattleya Digbyana Mossiæ* was also shown, and this is perhaps the most striking instance of the hybridist's art. If Mr. Seden had raised no other hybrid than this he would have rendered a splendid service to horticulture.

Probably the finest new hybrid shown was *Lælio-Cattleya Lady Wigan*, a large and beautiful flower, the result of crossing *L. purpurata Russelliana* and *C. Mossiæ aurea*. The sepals and petals are white with a rosy suffusion, the immense basal lip beautifully frilled, the throat lightly spotted on a yellow ground, the front striped with crimson purple. Mr. Brooman White of Ardarroch had a form of *Odontoglossum crispum* called *Starlight*, and this is the most distinct form ever exhibited. The segments are rosy white, closely covered with small dots of crimson. *Lælia purpurata Ashworthiana*, though not quite new, is absolutely unique. Both petals are marked with crimson purple as deep in colour as that of the lip, and this variation from the type has proved to be constant. *Anætochilus Sanderiana*, *Stenoglottis fimbriata*, and *Cattleya Mossiæ Reineckiana*, from Messrs. Sander & Co., the lovely crosses obtained by Mr. Chapman between *Cypripedium bellatulum* and *C. Curtisi*, and bearing the name of this very successful raiser, are only a few of the more striking things exhibited, but as a full and excellent report has already appeared in the *Journal* I must not further trespass on the space.

AT MR. W. BULL'S.

The annual exhibitions of Orchids at Mr. Bull's are events anxiously looked forward to by those interested, and anyone who has the good fortune to be personally conducted by this veteran orchidist cannot fail to pass a very pleasant and instructive hour. The present is the sixteenth consecutive season of the show, and the multitude of good things to be seen should tempt anyone who has time to pay a visit. Grand forms of *Cattleya Mossiæ*, *C. Mendeli*, and others now in bloom, combine with the noble *Lælia purpurata* in forming a groundwork, while the lovely *Miltonia vexillaria* is seen in magnificent form.

Odontoglossums are always a strong point here, and this season is no exception to the rule. *O. c. stupendum* is one of the very best of the white forms that are to be seen here in abundance,

while other plants in this section capitally done are *O. hystrix*, *O. cuspidatum*, *O. polyxanthum*, and a host of others. *Miltonia Roezli*, *M. R. alba*, and *striata* are fine, while a splendid form of *Thunia Bensoniæ*, named *Winniana*, deserves mention because of its distinctness and deep colour. *Cœlogyne pandurata* is a quaint but delightful plant, the quite black markings on a bright green ground giving it a most distinct and unusual appearance.

Fine forms of *Oncidium Kramerianum* help to give lightness and grace to what is undoubtedly one of the most tastefully arranged houses of Orchids ever arranged, while *O. macranthum hastiferum*, *O. Marshallianum*, and other more showy kinds are freely intermixed. Besides the more popular and showy kinds there is a large and varied assortment of quaint and singular plants seldom seen. *Pleurothallis* in variety, *Masdevallias*, *Bulbophyllums*, and some of the tiny *Oncidiums* need only be mentioned. Hardly in the latter category are *O. pulchellum*, *O. tetrapetalum*, *O. phymatochilum*, and *O. pulvinatum*; but of all these species fine plants are in flower. In fact, there is hardly a known kind that blooms at this season that one cannot find well represented in this superb and varied collection.

AT MESSRS. J. VEITCH & SONS'.

In this well-known establishment the Orchids are now superb, the large *Cattleya* house being especially well filled with striking

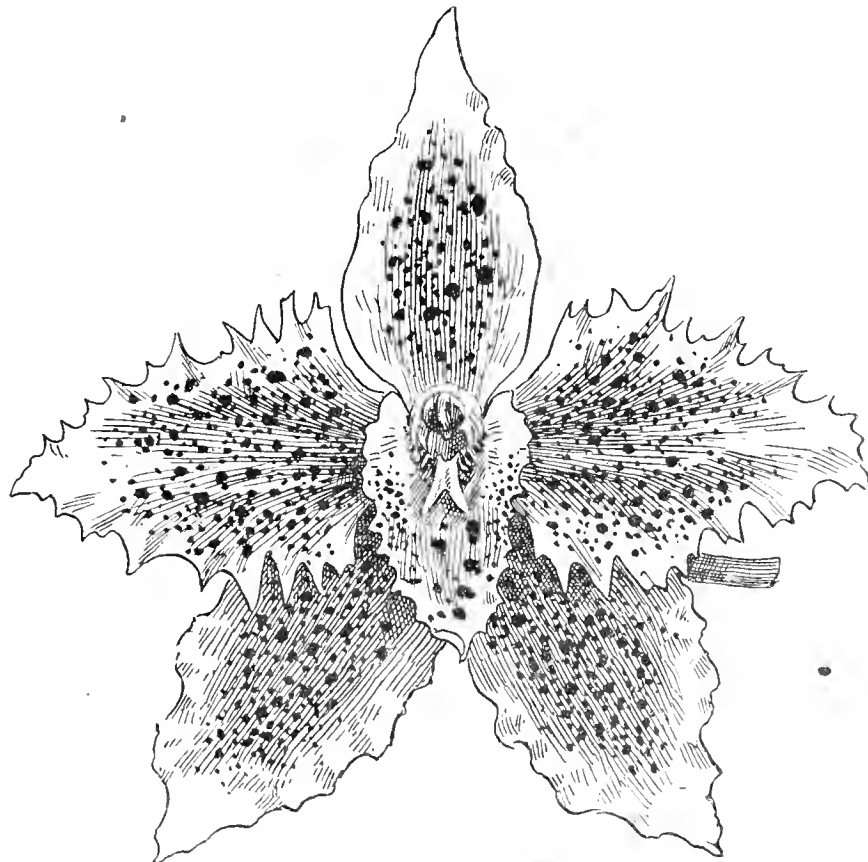


FIG. 96.—ODONTOGLOSSUM CRISPUM STARLIGHT.

and beautiful forms. The collection includes some extremely fine dark forms of *Lælia purpurata*, which with *Cattleya Mossiæ*, *C. Mendeli*, *C. Skinneri*, and *C. intermedia* among others make a grand display.

The lovely hybrid *Lælio-Cattleya Hippolyta*, *L.-C. ascena*, with their delicate shades of orange and purple, are in full flower, while the rather better known *Lælia Latona* was flowering freely. In the charming little annexe where Orchids and Ferns are grouped in a pleasing and natural manner there were many choice things, including the pretty bigeneric hybrid *Epiphronitis Veitchi*, raised here by crossing *E. radicans* and *Sophronitis grandiflora*.

Fine plants of *Maxillaria Sanderiana* and the pretty *Disa Veitchi*, *D. grandiflora*, and *D. racemosa* were also noted; while in an adjoining structure *Oncidium pulvinatum*, suspended from the roof in baskets, had a pretty effect. The distinct *Dendrobium litiuiflorum* was represented by well-flowered plants; while possessing the cooler structures *Odontoglossums* in variety, and *Masdevallias* of the showy flowered section, were as conspicuous by their fine health as their freedom of blooming.—H. R. R.

MANCHESTER AND NORTH OF ENGLAND ORCHID SOCIETY.

THE second meeting was held in the Coal Exchange on June 3rd, the exhibits being much more numerous than at the previous meeting, and of the highest quality. There were some fifty-nine exhibits sent for inspection by the Committee, five F.C.C. and twelve A.M. being granted. The trade made a splendid display, Messrs. Lucien Linden & Co., Brussels, showing *Cattleya Mossiæ* in extra choice variety, a fine specimen and variety named "Queen's

Jubilee; Cattleya Mossiae "Goliath" (A.M.); Odontoglossum Pescatorei expansum; Odontoglossum Princess of Wales, a natural hybrid, very choice, after the way of luteo-purpureum (A.M.). Messrs. F. Sander & Co. had a most interesting group, including the curious and rare Bulbophyllum barbigerrum (botanical and cultural certificate), Cattleya Mossiae Princess of Wales, Lælio-Cattleya "Fire Queen," a brilliant flower of unknown parentage; Lælio-Cattleya D. S. Brown, Cattleya Trianae × Lælio-Cattleya elegans, Lælio-Cattleya elegans var. Novelty (A.M.), and Sobralia macrantha alba (F.C.C.).

Amateurs again showed their great interest by coming forward with many good things from their collections. A F.C.C. was granted to Mr. E. Shill, gardener to G. W. Law Schofield, Esq., for Dendrobium Bensoniae alba. Mr. Alex. Hay, gardener to G. Shorland Ball, Esq., Alderley Edge, showed in fine form Anæctochilus Sanderianum and Cypripedium Curtisi giganteum. Some beautiful specimens were staged by W. Gumble Groves, Esq., Alderley Edge, including an intensely coloured form of Dendrobium Falconeri (A.M.). A F.C.C. was unanimously granted for a model plant of the difficult Dendrobium Lowi. A cultural certificate was awarded for a fine specimen of Thunia Marshalliana, Miltonia spectabilis radiata having the title, "Grove's variety," affixed to it by the Committee.

Mr. J. Lucas, gardener to R. Wigfull, Esq., Ash Grove, Sheffield, sent Odontoglossum crispum Stonei; Mr. McDay, gardener to Duncan Gilmour Esq., Sheffield, sent two pretty forms Cattleya Mossiae Reineckiana, Gilmour's variety, and Rosy Queen; Mr. Edge, gardener to J. Leemann, Esq., Heaton Mersey, sent Cattleya Mossiae Constance Leemann, and handsome Lælia purpurata, a fine dark variety certain to improve, being named Leemani, being given an A.M. Mr. G. Shiner, gardener to E. J. Sidebotham, Esq., Erlesdene, Bowdon, sent a capital form of Cattleya Mendeli; Mr. Nicholson, gardener to D. B. Rapport, Esq., Mere Bank, Liscard, easily won a F.C.C. with the handsome Cattleya Mossiae Rapportiana, mentioned in the Manchester Whit Show report (see page 512).

Mr. Spurr, gardener to H. Greenwood, Esq., showed an excellent plant of Cattleya Mossiae, var. H. Greenwood; also fine Dendrobiums in variety. The exhibition was in every way a great success. G. Shorland Ball, Esq., has been unanimously elected Vice-chairman of the Society and Committee, and E. J. Sidebotham, Esq., J.P., M.B., Hon. Treasurer, vice Mr. Ball. All who know these gentlemen will feel confident that no better choice could possibly have been made.—R. P. R.

PRECEPT AND PRACTICE.

"SCIENTIFIC AND PRACTICAL COMPETENCY."

(Continued from page 476.)

THIS sub-heading is quoted from Mr. Older-Boy's precepts, given for our mutual guidance, and which, as will be recollected, were detailed and acknowledged in commencing these papers. Science is the ladder by which we mount above the drudgery of labour, and from the eminence command the forces of Nature. It is not sufficient that young travellers should follow mechanically in the tracks of pioneers, revealing the hidden ways; few indeed would find satisfaction in taking all teaching as an accepted fact without some endeavour on their own part to supply the proofs, and in the doing we form a higher appreciation of those privileges they have conferred upon us, as well as an intelligent interpretation of the lessons. Judging, however, by such evidence as is adduced in the "Domain," there is good reason for supposing that our young men will not only mark and learn, but inwardly digest; the necessity of the latter they will no more overlook than its value could be over-estimated.

It is not only a question of soil, heat, water, and the stores generally in Nature's laboratory, these we have always had, it is all these, and more also; it is the controlling hand of a great engineer, who in driving a thing of life and power understands its intricate anatomy and delicacy of detail. From the higher intelligence springs deeper sympathies with the objects of our care in this the kingdom of silent life, and from this results are obtained incomparably superior to the exercise of mere brute force. Apart from these principles, and their direct dealing in the making of gardeners, there is a strength derived from the exercise which makes men. Doubtless many, at least, of our petty vexations would vanish in the acknowledgement of laws immutable, which, seen or unseen, known or unknown, govern all things, for we more often transgress from ignorance than from design. Given but an elementary conception of those grand laws which rule the objects of the solar system poised in space, it must prepare one to find the same great cause working out the same perfection, even to microscopic atoms on our planet.

Dr. Lindley said, "In no departments of natural history are the simplicity and harmony that pervade the universe more strikingly manifest than in the vegetable kingdom . . . and the most important phenomena are distinctly explained by a few simple laws of life and structure." "Simplicity and Harmony!" The more we reflect upon this the more must the sublimity of our subject impress itself upon us. It will strike many that there is a great gulf fixed between the life of a botanist and the life of a gardener, as such respectively. That, I venture to say, is the case. Possibly we can do but little more than bridge this chasm by such means as an elementary text book on botany will afford. This has been mentioned before, so is merely repeated in order to introduce its twin pillar springing from the foundations of our faith, upon which is superimposed the whole structure of intelligent cultivation—viz, vegetable physiology.

Very probably any serious considerations of either of these matters will, for obvious reasons, only enter into a young gardener's life as recreative objects. They may well do so. I know that our young men may do worse than wield the willow or hunt the football on a fine summer's evening; but they will, surely, do infinitely better by keeping in sight the goal of a gardener's life, and making all their recreative runs towards it. Perhaps with most of us in early life it is the only way with which science can be sandwiched with practice, and serve as mental food to physical labour. "More precept than practice?" That is so. I would fain leave impressions by repeated hammering upon material while it is malleable even to the extent of older boys and better men viewing them as redundant.

The chief object of Nature is perpetuation by reproduction. In plant life and under favourable conditions invariably by seeds (other methods of reproduction will be considered). To regard seeds, those which come under our hands as embryo plants in which vitality is only arrested until set in motion by an exciting cause is, I think, a common-sense view conducive to successful germination, the minimising of failure, and rational treatment generally. In the earliest stage of plant life, the delicate embryo is nourished by a tiny store of food enveloping the germ during the hatching process, pretty much the same taking place during the incubation of an egg. The same wise provision we find afforded by other means in the animal kingdom prior to a separate existence between parent and offspring. Seeds having, of course, when properly matured on the parent plant an independent being.

When sound seeds are subjected to moisture—water and heat—the awakening commences, according to the individual character of the species, owing to chemical changes produced by those agents—water and heat, which heat may mean anything above freezing point, where all life is again arrested. From a superficial view there are apparently strange anomalies in Nature, which would probably disappear under a little careful observation. For instance, the natural method of propagation by seeds is, of course, the falling off from the parent plant with the indirect means afforded in manifold ways for distribution, germination, and successful development of all which we may call chance work, and for which due provision is made by lavish production.

From personal observation of some things, the Nasturtium, for instance, we may note how year after year natural sowings are made, in which apparently unripened seeds, left to take care of themselves, fulfil their mission unaided and in seeming contradiction to facts advanced. One border I know of is yearly adorned in this way by a luxuriant growth of many coloured varieties of the common Nasturtium, and which at the autumn clearing is thickly strewn with immature seeds. This border is then forked over for neatness, and Nature does the rest. Here are green, sappy seeds consigned direct to a wet, cold bed, to be followed by such results as remarked, and which is, of course, a very common illustration. It is in the attempt to analyse these results that we may safely conclude that not more than 1 per cent. survive the ordeal, and I daresay that under normal conditions of artificial care and treatment the maximum per-centage of plants is obtained. Another conclusion may not be lost sight of—viz., that over and above all the agencies more or less erratic employed by Nature to fulfil her mission man is the chief.

It is not, perhaps, desirable to delve deeply into what may be regarded by some as abstruse questions; space, moreover, would preclude us from going on as we have commenced, although it is little more than the outline of a physiological section of this subject—seeds. Young students can continue it according to opportunity, to the end that rational treatment of these delicate organisms, whether of the costliest Orchid or the commonest vegetable, may be given; for they are equally worthy of an intelligent appreciation of their requirements. Literally and figuratively "as we sow so shall we reap."—AN OLD BOY.

(To be continued.)

LEAFY JUNE.

MAY, the month of hopes and fears, has fled, and we are now well into, what one is inclined to regard, so far as foliage and flowers are concerned, the most glorious month of the twelve. There is so much to please, so much to gladden as the eye roams over a wide stretch of country, and peeps into many a private demesne where free gardening has introduced fine-flowering shrubs. The shrubby Spiræas, gorgeous Rhododendrons, and the thousand things of individual beauty which collectively form a feast satisfying without satiety. Moore's invocation to the month now passed, "Come May with all thy flowers, thy sweetly scented Thorn," pleasantly eulogises a period which, possibly, is accompanied by more anxiety to gardeners than any other, but with the advent of June a feeling prevails that we are well over the danger line.

Very rarely, indeed, in ordinarily favoured localities do we suffer seriously from a relapse after May is out. One such occasion only do I remember when nigh on a score of years ago the night of the 6th of June sadly interfered with our bedding calculations by freezing all stiff, and some two thousand Flower of Spring "Geraniums" were crippled beyond recovery. Respecting May's flowers, its latter days do doubtless shed many riches o'er the scene, but poverty seems always treacherously near at hand, contingent upon sudden falls of temperature, that we hardly feel free to acknowledge the spirit of life and beauty developing with a rush in June till it is dominant through the land.

What a wealth of colour we have now among our forest trees! Oaks alone give such daring tones that the attempt of an artist to reproduce tints almost startling in their vividness would court adverse criticism, even did it not necessitate the labelling of the picture, "This is an Oak." And so with a host of things. There is no more striking contrast to be found than in the pale, plummy, tender green shoots of the Spruce Firs springing from the sombre hued growths of last season. Probably busy workers are too much engrossed this month to do more than give a passing glance when natural forces are rapidly transforming the first flush of beauty in the vegetable kingdom into vigorous growth. There is now more than a struggle for existence amongst the many things so quickly and so disagreeably asserting their right of being.

But few places there are, perhaps, in which during this fast-fleeting month an augmentation of the staff for the period would not be of inestimable service. "Keep the hoes going while weeds are growing" is grand advice; but how few are able to practise it as much as they could wish whilst the "big jobs" are being grappled with! One could easily pick dozens of places where the force of such simple needs are felt; simple they are but mean so much, and the remedy is all but unavailable. For instance, during the whole month of June the normal staff might be wholly employed in hoeing, and there are many indeed in which bedding out, planting out, and other works of vital importance prevent the needful stirring, and so "ill weeds grow apace."

It is a fact, and an unpleasant one, to many a private gardener that his neighbour, the farmer, possesses distinct advantages in the temporary employment of women and boys in the hour of need. As an aid to garden work there is not much to be said for, or even against, the ubiquitous boy, but the advantages conferred in one large garden that I knew by women's labour as an auxiliary during pressure were so great that one could wish this means to an end were more generally favoured, for this labour is both good and cheap.

Very expressive is the name given to this month "praireal," as indeed they all are, in the French revolutionist calendar. The appositeness of "praireal"—the meadow month—must be obvious to even a casual observer, who can hardly fail to catch some of the multitudinous minor notes of beauty now rising from grasses and herbage, so beautiful, so perfect in their modest way. I wonder if our young gardeners, whose attention is claimed by more assertive beauty, ever give a passing recognition to these, the humble and meek of our native flora. Take for example and for observation one square yard of an old pasture during this month, and—well our boys must not be botanists pure and simple, but it is just possible that some knowledge of our native grasses will not only not be superfluous in the days to come, but may be distinctly of advantage to them—to those from whom so much will be expected.

Whether or not the palm for beauty in its most comprehensive aspect is awarded *con amore* to leafy June, as far as gardeners are concerned, it is to them the busiest of busy seasons. Flower gardens that are to be furnished with tender plants may be no longer delayed, and every means to the end of good results quickly attained, and as continuous as possible is the desideratum. Never before, I think, have we been nearer to our ideal of a gay and interesting and generally satisfying method than is now employed by liberal-minded men—gardeners—in planting for summer adorn-

ment, whereby a judicious use of various fashions has deprived anyone of them of that monopoly a primary craze creates. Bright blooms, beautiful foliage, in neat design or bold outline, all combine to charm, to soothe, to satisfy. Yet this is anticipation. There is, to my mind, at present a galaxy of natural beauty that no other month affords—these fresh young days of summer which inspired Southey to apostrophise from the summit of Shooter's Hill the spirit of health borne on "Showery June's dark south-west gale."

—INVICTA.

AMARYLLIS OR HIPPEASTRUMS.

It was my fortune (good or bad?) to have to record before the R.H.S. the history of the garden Pæony from their first advent in our gardens up to comparatively recent times. I had to thank some kind friends, amongst them the aged French nurserymen, M. Charles Verdier and M. Keteleer, and their recollections, for the record of progress from the first, of those interesting plants, the named Pæonies.

In giving a short lecture on Amaryllis at a local Hertfordshire society I essayed to do the same thing for the Hippeastrum, and in the same manner I had to avail myself of the kindly help of living raisers. I had also the advantage of Mr. Veitch's and Mr. Douglas's papers read before the R.H.S., and the careful records of the family given in Dean Herbert's "Amaryllideæ." With Amaryllis, however, it is not the same thing as with Pæonies, for though they can be increased by offsets it is a slow and difficult process, and they rather lend themselves to reproduction from seed. Named sorts, though remaining in collections, do not readily become common garden plants.

But I may be able to tell part of the story of their progress from the earlier species with the help of some of the raisers. The first recorder is the Spofforth Vicar, afterwards Dean Herbert, whose record of the then existing Hippeastrums has been the foundation of all recorders. Mr. Baker's "Amaryllideæ" (1888) brings the family up to that date, and is the most complete botanical account of the order. In Mr. Harry Veitch's and Mr. Douglas's papers we have the most practical, and in the former the most historical, history of the garden forms, and he tells much the same story which I have to relate.

Most interesting letters have reached me recording the respective work done in hybridising by Mr. de Graaf of Leiden, Mr. Heal, Messrs. Veitch's foreman of Amaryllis; and lastly, by one of the earliest raisers, Mr. Baxter, then of Broxbourne, Herts, who about 1868 had several varieties certificated by the R.H.S. I may claim for my own county that Hertfordshire Amaryllis as well as Hertfordshire Roses and fruits have taken a foremost place. Herbert's name of Hippeastrum has been formally adopted in "Genera Plantarum" for the South American species, leaving to the South African *Bella Donna* Linnaeus's original name of Amaryllis.

The two families do not seem to hybridise. So Herbert found. Veitch says, "We have ourselves demonstrated experimentally that they will not cross," and I have not been successful either with these nor with Vallota. If one may take the absence of any special form of deviation in seedlings, the result of seemingly successful crosses, the only distinct characteristics of some such supposed hybrids were more erect flowers. It is curious, as the succeeding family of Amaryllideæ, Cyrtanthus, has given hybrids.

The known wild varieties is larger now than in Herbert's time. He gives fifteen species, Baker's book records thirty-eight. Up to 1867, when Leopoldi and pardinum were introduced by Messrs. Veitch, the kinds bred from were, according to Herbert, Regina (Regium of Herbert), from which sprang the first hybrid, Johnsoni, raised by the Prescott watchmaker of that name; aulicum, and vittatum, the kinds most distinctly, I think, recording its influence amongst all the hybrids; solandriflorum, the kind to which we owe the long slender tubes; and reticulatum and its form striatifolium, the parent of the winter flowers to which Mr. Heal alludes, and of which some old forms of Sweet and Colville existed. To the species bulbulosum, with its varieties, and to fulgidum, equestri-forme and rutilum we probably owe the scarlet of our modern varieties.

Dean Herbert was the first really considerable hybridiser, working from 1824 to 1847. Many crosses figured in the illustrated journals of those and succeeding years. He did not advance much in shape or colour, but he laid the foundation of our present race.

Garraway of Bristol raised, in 1835, from the form of aulicum, figured in the "Botanical Register" of 1826, the variety Acramanni pulcherrimum, and its singular beauty led Van Houtte, De Graaf, and others on the Continent to commence crossing, and in England Messrs. Henderson, Mr. Holford of Westonbirt, Speed of Chatsworth, and amongst others my neighbour Mr. Baxter of Broxbourne.

He writes me:—"My first start with *Amaryllis* growing at Broxbourne was in 1864, with a small bulb of *marginata conspicua*, which I had from a friend. I grew that for about twelve months, then had six bulbs from Ghent (Van Houtte's) which were very poor varieties, and also their petals, but one had very good colours and markings. I thought if I could get it in as good form as *marginata conspicua* it would be a great improvement, so by perseverance I managed to get it into flower by March. I hybridised the fancy-coloured one with *marginata conspicua*, and there came an unexpected variety of colours, from the deepest crimson, such as *Athelt*, without any trace of green in the centre, as in all the other sorts then in cultivation. From the same cross came the other varieties, such as *Olga*, *Madame Tietgens*, *Alexandra*, *Rembrandt*, and *Duke of Edinburgh*. For these I obtained certificates in 1868 and 1869. I showed a good collection in 1868, when Mr. Veitch thought the colours were very good but not in form and substance, so they wanted to exchange *Palan*, which we did for some few years. I think that helped them into the beautiful colours. Of course I could have done more at that time if I had had more space, and could have bought the best formed varieties, but where they are shillings now they were guineas then. Mr. James Williams, on seeing my first batch of seedlings, said it would take me seven years before I could flower them, but it only took me two and a half years. I always rested them in the winter, young as well as old, but I kept them on the move as fast as possible.

Mr. De Graaf tells me his father started in 1830 with varieties of *Johnsoni* and *vittata*. Garraway's *Acramani pulcherrimum* was added to the collection, and with *equestre* and *crocea grandiflora* the work was mostly for colours; but later on, by the use of *equestre*, better forms than the old pipe-shape was obtained, *psittacinum* and *braziliensis* giving also improvements in size and more perfect form. Henderson and Williams had made some march during this period with the winter-flowering *reticulatum*, continuing the old work of Sweet and Colville with *Goweni* and others. *Solandriflorum* had helped on the kinds with bold white edges to the petals.

Mr. Veitch, in his paper, says, "We found, as Dean Herbert had found half a century before, that when we used a particular species, whilst we are able to select several distinct new forms, showing a marked improvement on their progenitors in breadth and substance of segment, size, and symmetry of flowers, many possessed the main features of the species (*Leopoldi*). The finest we called *John Heal*, in recognition of the patience and intelligent perseverance of our coadjutor."

Mr. Heal writes:—"I find we commenced the hybridisation of *Amaryllis* in 1867, when Pearce, our collector, sent us *Leopoldi* and *pardinum* from Peru. The results with *pardinum* were not encouraging, only two, *Brilliant* and *Chelsoni*, did we consider worthy of a name out of a batch between 500 to 600 bulbs; we therefore gave up that species for crossing purposes. With *Leopoldi* we were more successful, and to this species we consider we are indebted to those large well formed flowers of the present day, and those growers who did not make use of the *Leopoldi* blood were left behind in the race for fine bold open flowers. We first crossed *Leopoldi* with the finest Continental and English varieties we could procure, employing it as seed and pollen parent. The first attempt was not a great success, but sufficient to induce us to go on; we therefore started again in 1876 with our best *Leopoldi* crosses, and intercrossing them with *Graviana*, raised by Mr. De Graaf of Leiden, and *Acramani pulcherrima*, raised by Messrs. Garraway & Co. of Bristol, also with pollen we received from Mr. Baxter of Barnet, and the late Rev. T. Staniforth of Storr's Hall, a great amateur and lover of the *Amaryllis*.

"The result of these crosses were most encouraging. We flowered those fine varieties *Lady of the Lake*, *Tennyson*, *John Heal* and others. We were so pleased with the results that we began to look about for fresh blood, in which we were most successful by procuring from Mr. De Graaf's *Empress of India* and a few others. In 1880, when we had such fine varieties to work on as the above, dates a new era for the *Amaryllis*.

"At first *Leopoldi* only gave us two flowers on a scape, but by procuring the Continental varieties with four to six flowers, we were then able to do the same with *Leopoldi* strains. We also crossed with *aulica*, *vittatum*, *equestre*, *solandriflorum*, and other species with very poor results, although we improved the *aulica* strain and the *solandriflorum*, but not sufficiently to make further trials. We were more successful with crossing the *Leopoldi* strain with *reticulata*, which resulted in obtaining a beautiful race of autumn and winter varieties, known as *Autumn Beauty*, *Lady Mayoress*, and few others, which have finer form, flowers, and deeper veins than *reticulata*; those varieties require warmer temperature, so we have not gone on with them. I think this is the history of our *Amaryllis* hybridisation."

My own experience as a raiser I began after a visit to Holland with twelve bulbs of the ordinary then called the seed-shop sorts, and fairly succeeded in flowering most of the twelve the first year. I the next year tried a dozen of the proved named sorts, and my growing with successful culture I bought of De Graaf some eight bulbs of the finest and most distinctly varied of his collection for some £50. One of the Haarlem raisers had a fine collection of the more vigorous old sorts, with much *aulica* in their blood, and I added some three or four bulbs of the best of Messrs. Veitch's finest seedlings of the year. I had also *Brown Beauty* of Reigate, certificated in 1873, and one or two of Baxter's. I am happy to say that during my life I have always found amongst the best raisers a friendly rivalry and a hearty wish for the success of raisers running side by side with each other.

It was some three years after raising my seedlings that I obtained my first success, and my first certificate was obtained in 1889 with *Sea Nymph*; followed in 1892 with *Mars*, a very fine scarlet, and *Silver Queen*, a fine margined kind, and *Firebrand* all in 1892; *Salvator rosea* and *Lightning* in 1893; *Novelty* in 1894. Besides these we won many certificates at the Royal Botanic Society, and took for some years, with occasional defeats, from our old friend and good grower, Mr. Douglas, most of the first prizes for *Hippeastrums* at the R.H.S. and the Crystal Palace Finding, however, that the stock was increasing faster than the sale, we have somewhat ceased hybridising except with a few of the very finest seedlings appearing each year.

My aim has been to differentiate somewhat from other raisers, and instead of seeking mere size and other qualities of the florists to try and gain a new and larger range of colour and the selfs more intense; where margined, their colours more separate and clear, and to maintain the graceful form of the flower, giving it breadth of petal and substance without losing the tubular shape.

Amongst other growers I must not omit Mr. Douglas of Ilford, a well-known name, and Mr. Perkins, the skilful gardener to Lady Hambledon of Henley, whose collection is fine, and grown somewhat differently from our own, and who has already this season shown a fine group at the R.H.S. meeting of February. Taking the R.H.S. list of awards as a fair record of the best varieties, it may interest you to note the succession of the several raisers since the formation of the Floral Committee. Mr. B. S. Williams in 1862; with *Unique* and so on; in 1879 Dr. Masters. Mr. Bull of Chelsea, and Messrs. Henderson, then of St. John's Wood, began in 1863; with *Fire King* and *Brilliant* respectively. Veitch's, with *Virgo* and the spring *Pardina* in 1867, *Leopoldi* in 1869; *Chelsoni*, the first hybrid of these two last, in 1871, whence continuously up to the present date. Garraway of Bristol, with *Cleopatra* and *Hebron* in 1867; Baxter in 1868-1869, with *Alexandra* (named after the popular Princess of Wales), *Olga*, and *Duke of Edinburgh*; 1878, Mr. Little of Twickenham; 1879, Mr. Speed of Chatsworth; 1888, Mr. Kelway; 1889, Mr. Paul; 1892, Lady Hambledon.

As bearing out the difficulty to which I have alluded of propagation, I doubt if you could procure, excepting Dr. Masters, John Heal, and one or two other kinds which produce offsets freely, six plants of any one of this long list of certificated kinds.

FLORISTS ARE ALL AGREED.

The points which the florists are generally agreed upon are that the flowers should be in form triangular, that the petals should be broad, overlapping one another, so that, as in *aulicum*, and the older species, no light may be seen through, and that they show a large face, the crowns also should be joined in the petals. Colour should be clear, if self down to the very base of the throat of the flower, and if white or striped all grey should be eliminated. The flowers of the *Leopoldi* section should be open, but the tubular section need not be so. The form of the *Harrisi Lily* should be rather their type. I could only on looking over some collections shown this spring conclude that the taste which had been fostered was the wrong one, and that the flowers had lost grace and beauty from the desire to show a large open surface. A few men who are ardent florists were gathered round the groups, including our Chairman, and they all, I think, agreed in what I have ventured to say on this point.

CULTURE.

My culture has been fairly successful, and is that adopted by De Graaf, and since by most other (though not universally) growers. The bulbs, dried well off in the autumn, should be shaken out of the soil and pots in which they have been resting in a dry state since September. They should be cleared from all loose skin, dead roots, and in case of any insect pests should be washed round the crowns with a little Gishurst or softsoap. Potting may be done with a few of the very earliest ripened bulbs in December, but generally from the first to the third week in

January. The soil should be half fibrous loam, a quarter leaf soil, and a quarter rotted cow manure, to which should be added about one-third sand when about to use it, for it is well to lay up the soil some two months before using it. Take care to bring the soil into the house to warm before using it, so the roots may be promptly encouraged to at once throw themselves out.

BEST HOUSE FOR AMARYLLIS.

Just a remark or two about the best house for Amaryllis. They seem to do well in any light airy structure; at Lady Hambledon's Mr. Perkins had them on the Peach house shelves, where Strawberries are placed for fruiting. Most of the growers have followed M. De Graaf in placing them in a span-roofed house, running north and south, with a central bed, for flowering the collection, and a bed on either side for the seedling plants. I do not grow on artificial bottom heat, but had on raised beds some 2 feet deep, filled with fresh tan, in which the pots are plunged into the rims. No water is given until the leaves or spikes begin to throw up, showing root action, when a good watering may be given. An occasional syringe of the leaves is good. As the spikes throw up stake them. I grow in a somewhat lower temperature than many growers, though my Hippeastrum house varies in temperature at the two ends, one-half has six pipes, another only four, so that the time of flowering is thereby prolonged. A temperature of about 60° is quite high enough, sinking to 45°, or even lower, at night. On sunny days air may be given, sparingly at first, and more when the foliage is well up. Move the plants when in flower under a shady part, or to the conservatory or a cool house.

After the flowering is past encourage the growth by continuous watering and some gentle stimulant until September, then they may be gradually dried off, and put away—pots, soil, and all—on to a dry frost-proof shelf, or under dry drip-proof stages, being after this stage kept without water until the time of repotting comes.

SEEDING.

All flowers should be cross-fertilised, either with the other flower on the spike or with good other sorts in flower at the same time. Remove the anthers from the plants to be seeded, apply the pollen, and a certain number of seed pods usually result. The seed ripening, in some six weeks' time, I prefer to sow at once, and to keep the seedlings growing as evergreens for the next two years. They may be propagated by the removal and repotting in small pots of the side offsets. These are not numerous, and only worth securing in the case of very choice kinds. Seed is easily secured, and the seedlings usually produce a proportion of good kinds. If hybridised the chances of stronger progeny is better, care being taken to have good vigorous seed-bearers. As to whether they are worth the culture (it is simple) I think, looking at the beautiful flowers we have, it is. They are very showy, bloom at a time of year we welcome all flowers, are useful for home decoration as plants or cut flowers, and have at least an interesting history.—(Read by MR. GEO. PAUL at a meeting of the Horticultural Club.)

ACROSS THE CHANNEL.

ANYONE interested in gardening, who may happen to visit Paris in the month of April, should not fail to have a run through the Bois de Boulogne, for I think its aspect is then more beautiful and varied than at any other period. A very delightful way of seeing the "Bois" is to take a "fiacre," and go for an hour or two's drive along its fine avenues of Chestnuts and Planes, and through the woods of Poplars, Limes, Oaks, and Beeches then just budding into new growth. A further charm is added by the wild plants in flower—Polyanthus, Lychnis, and Periwinkle.

The lakes and the several small, well-wooded islands form an attractive feature of this park. Their banks are clothed with the Weeping Willow, Ash, and Beech, and many specimens in flower of Magnolia conspicua, Forsythias, Prunus, Ribes, and Berberis. The islands are chiefly planted with evergreen trees and shrubs interspersed with Magnolias, Acers, and the deciduous Cypress. If we follow the road by the side of the lake in the direction of Longchamps racecourse, we shall pass several effective waterfalls pursuing their course between rocks clad with Ivy or other creepers, and surrounded and shaded by the Birch, Ash, Pine, and Willow.

Bearing to the right we presently emerge from the wood to find a fine panorama of sylvan scenery stretched before us. Nestling on the wooded slopes of the distant hills, Sèvres and Saint Cloud may be distinguished, while to the right of these Mont Valérien stands out clearly above the village of Auteuil and the Seine valley. On our return journey we pass "La Grande Cascade," where the water falls from a height of perhaps 50 feet over rocks, clothed with luxuriant vegetation.

The "Jardin d'Acclimatation"—the Regent's Park of Paris—is

situated in the Bois de Boulogne. It is interesting to the lover of horticulture and zoology alike, and a short time may be very pleasantly spent there. A novel and enjoyable way to reach it is to take the miniature pony tram from the entrance gate of the park. The journey, which occupies about ten minutes, takes one right through the dells and glades of the "Bois." Inside the Jardin d'Acclimatation the grounds are of a different nature. The flower beds are bright with Wallflowers, Aubrietias, Polyanthus, Myosotis, Tulips, and Hyacinths. These, together with the various flowering shrubs of Prunus, Forsythias, and Pyrus contrasting pleasingly with the many tints of foliage in the background.

As one enters the gardens, on the right is a block of houses devoted to the culture of Palms. These contain quantities of fine healthy looking plants of Phoenix reclinata, Latania borbonica, Kentia Belmoreana, Areca lutescens, Rhaphis flabelliformis, Geonoma gracilis, Cocos Weddelliana, and others.

But the chief horticultural feature of the Jardin d'Acclimatation is the large "Jardin d'Hiver," situated to the left of the main entrance. It may be described as an oblong building, about 50 yards long, by 20 yards wide, and 30 yards high. It has a curiously shaped roof, consisting of a series of semicircular ridges. Adjoining one side of the house, and running the full length of it, is a conservatory. On the opposite side there are several small span-roofed stoves, all opening into the larger house. The centre beds of the conservatory are planted with fine pyramidal shaped specimens of Camellia reticulata, C. Spoffortiana, and C. Kilvingtonia; graceful Grevilleas, sweetly scented Indian Rhododendrons, and Acacias adorn the sides. The groundwork of Selaginella is relieved by various flowering plants in pots plunged in the bed, the distinct blue and rose-coloured Cineraria being especially striking.

The stoves contain collections of ornamental foliage plants, Orchids and Bromeliads. The interior of the large glass house into which the others mentioned converge is very tastefully laid out. A broad raised walk skirts the outer edge of it, and below smaller walks with graceful curves run alongside, or sometimes cross the pretty winding stream in the centre. Clumps of Bamboos and large Strelitzias are planted at intervals in the side beds, the spaces between being filled with Begonias, Aspidistras and Tradescantias. The water is flanked on each side by a beautiful green carpet of Lycopodium, dotted here and there with Primula obconica, Cinerarias, Genistas, Clivias, Azileas, Begonias, and other plants in flower.

Palms succeed here admirably. The specimens of Seaforthia elegans, Areca sapida, Sabal umbraculifera, Cocos australis, C. Romanzoffiana, and Rhaphis flabelliformis are really fine. Other noticeable plants growing luxuriantly are Acanthus lusitanicus, Ruscus androgynus, Caladium esculentum, Oreopanax dactylifolium, and Hebeclinium ianthinum.

The rock garden and dell of Tree Ferns at one end of the house form a pretty feature. The handsome clumps of Dicksonias, Cyatheas, and Alsophilas give quite a tropical aspect to this corner. The rockwork is almost hidden beneath the growths of Begonias, Panicum, and small Ferns.

Close by a rustic bridge which crosses the stream is a splendid mass of Asparagus plumosus growing in great profusion. In a large corridor leading from this end of the Jardin d'Hiver there are some remarkably fine specimens of Cocos plumosa growing in tubs, and certainly not less than 40 feet high.—H. T.

NON-PRODUCTIVE STRAWBERRY PLANTS.

WHEN on a recent visit to Tamworth my attention was drawn to a large quarter of President Strawberry plants in a most vigorous state of health, but not a single truss of flower was to be seen; whilst several other varieties, including Royal Sovereign, growing close by under the same treatment were in abundant bloom. The owner contemplated preserving them (the plants in question) for another season in the hope that they might prove productive of fruit, but on my recommendation purposes to chop them up at once and plant the space with Violas for sale when established.

So far as I am cognisant the real cause of this abnormal condition so frequently observed amongst Strawberry plants remains a mystery, though more than one theory has been hazarded by growers and physiologists towards a solution of the problem.

Apparently this lack of fructification is a constitutional defect possessed by certain varieties, and which is augmented by over-feeding whilst in the growing state. The matter is worthy of the serious attention of the scientist, though the most drastic measure would be to destroy such plants at once.

Cows appear to be very fond of the foliage of Strawberries, and I recommended my Tamworth friend to fodder his own cows with that of the blind plants, jocosely remarking that thereby the cow's laboratory might produce him "Strawberries and cream" *ad libitum* without further trouble.—QUERIST.



WEATHER IN LONDON.—The metropolis has been thoroughly warmed during the past seven days. On Thursday, Friday, and Saturday of last week the sun shone with great brilliancy and considerable power. Sunday afternoon brought a thunderstorm with rain, but the air was not much cooler until Monday, when it was dull the whole of the day, a little rain falling at intervals. Tuesday was cold, and brought several sharp showers; while Wednesday proved dull and wet.

— MR. MARTIN H. FOQUETT SUTTON.—At a dinner given at Reading recently by Messrs. Sutton & Sons it was announced on behalf of the firm that, in addition to the day's pay on June 22nd, a sum representing an extra week's wages would be presented to everyone in their employ, in honour of the Diamond Jubilee of the firm's patron, her Majesty the Queen. The dinner was given to several hundreds of the firm's employes at Reading on the occasion of Mr. Martin H. Foquett Sutton becoming a partner. His health was proposed by his grandfather, Mr. Martin Hope Sutton, now in his eighty-third year, who founded the firm more than sixty years ago. The evening was one of the many pleasant ones that have been passed by the employes of this firm.

— STREPTOCARPUS.—The strain of these beautiful flowers, originally derived from Messrs. Veitch & Sons, which Mr. Salter has at Woodhatch, is particularly rich in deep colours. The reds and blues are almost intense, and clearly indicate that we shall see in them in a few years some striking colouration. The strain so far is of the floribundus type, but here and there an infusion of the cluster or truss flowering style of *gratus* seems evident. Mr. Salter has been working to obtain yellow hues, but time alone will show what will result. It is very evident, judging by what firms like Messrs. Veitch & Sons and Messrs. Sutton & Sons have done and are doing for the *Streptocarpus*, and such private growers as Mr. Salter, that these plants have before them a great future.—A. D.

— ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—One of the most decided efforts that is being made by any horticultural society in celebration of the Diamond Jubilee, is that of the Royal Caledonian Horticultural Society. At its autumn show, to be held on September 8th and 9th, besides the ordinary classes, there will be some termed Victoria Diamond Jubilee prizes, in four classes, one each for fruit, plants, cut flowers, and vegetables, of which the first and last are open to gardeners and amateurs, and the second and third to all. The first is for the best and most tastefully decorated table of dessert fruit, 10 feet long by 4 feet 6 inches wide. There are three prizes of 20, 12, and 7 guineas respectively, as well as medals. The plant class, for a group, takes similar generous prizes, while the cut flower is for a table 15 feet long by 5 feet wide, the prizes being 10, 7, and 4 guineas, again with medals. For vegetables the prizes are as in the cut flower class, and the table space allotted is 12 feet long by 5 feet wide. For full particulars write to the Assistant Secretary, Royal Caledonian Horticultural Society, 18, Waverley Market, Edinburgh.

— LUPINUS ARBOREUS.—This is one of several beautiful semi-shrubby leguminous plants which are well adapted either for an herbaceous border or the front row of a shrubbery. Commonly known as the "Tree Lupine," it forms, with a little stopping when young, a dense shrub 2½ to 3 feet in height, with soft fleshy stems. The compound leaves are usually composed of nine or ten linear-lanceolate leaflets, which almost form a circle. They are thickly covered, particularly on the under surface, with soft silvery hairs, which add greatly to their beauty. The flowers are produced during May, June, and July on upright racemes, which terminate growths of the current season. The racemes are 6 to 8 inches in length, and are composed of yellow flowers grouped usually seven together in semi-whorls three-quarters of an inch apart. It is a Californian plant. Although perfectly hardy in ordinary winters, a spell of severe frost sometimes proves too much for it, consequently it is necessary to propagate a few plants either from seeds or cuttings each autumn, and winter them in a cold frame if its safety is to be insured.—D. K.

— ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral Meeting of the Royal Horticultural Society will be held on Tuesday, June 15th, in the Drill Hall, James Street, Westminster, 1 to 5 P.M. A lecture on "The Physiology of Plants" will be given at three o'clock, by Prof. S. H. Vines, F.R.S.

— NOTTINGHAMSHIRE HORTICULTURAL SOCIETY.—The Arboretum, Nottingham, will be *en fête* on July 14th and 15th, when the above Society holds its annual show. This year the proceeds are to be devoted to the funds of the local hospitals, and it is to be hoped that with such an object in view the show will be well patronised. The schedule contains forty-five classes, in which prizes are offered. The Hon. Secretary is Mr. J. M. Stewart, 16, Market Street, Nottingham.

— NEW LUNGS FOR LONDON.—At the monthly meeting of the Metropolitan Public Gardens Association plans were submitted and approved for the laying out of Albion Square, Dalston, and the Paragon, New Kent Road, and seats were granted for Kennington Green; West Hill, Wandsworth; the Oval, City Road; and Wendell Park, Starch Green. It was also decided to assist in the promotion of a scheme for utilising as a recreation ground a cleared area in Morton Road, Islington.

— ROYAL METEOROLOGICAL SOCIETY.—At the next ordinary meeting of the Society, to be held in the rooms of the Royal Astronomical Society, in the Quadrangle of Burlington House, Piccadilly, W., on Wednesday, the 16th inst., at 4.30 P.M., the following papers will be read:—"The Non-Instrumental Meteorology of London, 1713-1896," by R. C. Mossman, F.R.S.E., F.R.Met.Soc. "Hailstorm in the South-West of London, April 27th, 1897," by Charles Harding, F.R.Met.Soc. Tea and coffee will be served from 4 to 4.30 P.M.

— KENT COUNTY CHRYSANTHEMUM SOCIETY.—The schedule of the Show of this Society, which will be held at the Rink, Blackheath, on November 3rd and 4th, is to hand. It enumerates forty-seven classes, divided between sections that are open to all, for gardeners, for amateurs, and for ladies. Capital prizes are offered, and this year's show will, it is hoped, maintain the character for high quality that the Society has held for some years. The Hon. Secretary is Mr. F. Fox, The Cedars Gardens, Lee, S.E., who will furnish all particulars on application.

— DAPHNE CNEORUM.—Among low trailing shrubs suitable for the rock garden there is none more beautiful than the alpine *Daphne Cneorum*, which is found on the calcareous soil in the Jura and southern Alps as well as in Hungary and Transylvania. In its home it is often called the Pearl of the Mountains, and its close clusters of delicately scented rose-coloured flowers are now, says the "Garden and Forest," at their best. It is an old plant in gardens, and we call attention to it every year, but its beauty cannot be too highly praised. The roots are fine and thread-like, which shows that they like to wander in deep light soil.

— CARNATIONS AT TEDDINGTON.—Mr. G. May, who did so much to popularise that fine crimson Carnation *Uriah Pike*, grows it for cutting from in immense quantities, and in splendid condition. Visitors privileged to look through the nursery see house after house full of strong plants; literally they are in thousands, all sturdy, healthy, and as even over the tops as if mown, yet carrying flower buds in marvellous quantity, and such fine, rich-coloured, and sweetly perfumed flowers also. It is only needful to see these plants to understand what a good grower and free bloomer the variety is. The next one most highly favoured seems to be the rich pink-flowered *Duchess of Fife*, a great beauty on Miss Jolliffe. This is also a fine robust form, and the pretty yet good sized flowers are in great demand.—A.

— VIBURNUM TOMENTOSUM VAR. PLICATUM.—One of the choicest of our late spring flowering shrubs is the one under notice. In the sterile form the heads of flowers resemble those of our common Snowball Tree "*Viburnum Opulus* var. sterile," but they are much larger, whiter, and more freely produced. The heads of flowers are 3½ to 4 inches in diameter, composed of blossoms 1½ inch across, thickly crowded together. The leaves are acutely ovate, 4 inches in length by 2 inches in width, hairy on the under surface, almost glabrous on the upper, deep glossy green, with deep serrated margins. Good soil should be given, as it is a gross feeder, and long strong shoots should be encouraged, as the better the growths made during the one year, the better the following year's display of bloom. It should be grown from cuttings. For the first two winters young plants should be given a protected place, as when young they are sometimes damaged by hard frosts.—D.

— WELCOME RAIN.—Mr. J. Udale, Droitwich, writes, "Welcome rain came on June 1st and 2nd with a higher temperature, and vegetation is now making better progress. Aphis was making its appearance very plainly upon many Plum trees, but the trees will now outgrow its attacks."

— RAINFALL AT ABBOTS LEIGH, SUSSEX.—The total rainfall at Abbots Leigh, Haywards Heath, Sussex, for May was 1.16 inch, being 0.29 inch below the average. The heaviest fall was 0.39 on the 30th. Rain fell on eleven days. The maximum temperature was 73° on the 17th, 18th, and 30th. The minimum 30° on the 13th. Mean maximum, 62.27; mean minimum, 41.30°; mean temperature, 51.78°—1.93° below the average.—R. I.

— MAY WEATHER AT DRIFFIELD.—Mean temperature at 9 A.M., 50.83°. Wet bulb, 46.04°. Mean maximum, 56.93; mean minimum, 39.55. Highest, 67.0° on the 31st; lowest, 31.8° on the 13th. Mean of maxima and minima, 48.24°. Mean radiation temperature on the grass, 36.01°. Lowest, 26.4° on the 13th. Rainfall, 1.03 inch. Number of rainy days, eight. Greatest amount on one day, 0.37 inch on the 29th.—W. E. LOVELL, *Observer, York Road, Driffeld.*

— MAY WEATHER AT DOWLAIS.—Rainfall, 1.87 inch. Maximum, 0.44 inch on the 29th. Number of days on which rain fell, thirteen. Thermometer: Highest reading, 86° on the 24th; minimum, 24° on the 12th. The temperature was below 33° on eight nights. Mean maximum for the month, 62°; mean minimum, 36°. The wind was in the S.W. and W. on nineteen days, and in the N. and N.E. on eleven days, and until the 22nd was very strong and bitterly cold the whole of the time, with regular blinding storms of snow on the 12th. There were five sunless days.—WM. MABBOTT, *Dowlais, S. Wales.*

— PYRUS MAULEI.—This is one of the most showy of the early spring-flowering shrubs, and being a native of Japan (whence the late Mr. Maule of Bristol imported it) is perfectly hardy. We have several plants in the pleasure grounds growing naturally. They are 4 or 5 feet in diameter, and being wreathed with thousands of blooms for several weeks in succession have been much admired. This variety has the advantage of fruiting freely in the autumn, which gives it a very handsome appearance. It is easily propagated, either from seeds or divisions.—S, *Yorks.*

— PRESENTATION TO MR. INGLIS OF HOWICK.—We receive on Wednesday, when preparing for press, a lengthy report of an interesting meeting, but all we can do is to give the purport of it—namely, that Mr. D. Inglis, who for the last twenty-two years has acted in the capacity of head gardener to Earl Grey of Howick, and who during that time has made himself extremely popular, not only at Howick, but in the district generally, was made the recipient of a handsome inlaid rose-wood cabinet by the parishioners of Howick and other friends on his leaving the district to take up the duties of head gardener to his Grace the Duke of Buccleuch at Drumlanrig Castle. A silver plate bearing the following inscription has been let into the cabinet:—"Presented to Mr. Inglis as a token of esteem and regard by parishioners and friends on leaving Howick. May, 1897."

— ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION.—The last monthly meeting of the above Association was held at Sandown on Saturday last, when a very enthusiastic meeting was presided over by Dr. J. Groves, B.A., J.P. Mr. Alfred Outram's admirable paper on "The Progress of Horticulture in America," read by Mr. C. Orchard, afforded much scope for discussion, and finally it was agreed that Englishmen had played an important part in the development and progress of horticulture in the United States. The Chairman gave a very interesting account of his many visits to America; whilst Mr. C. Orchard spoke of his experiences when gardener to an American family of note. The platform and table contained horticultural exhibits. Mr. Jos. Perkins, gardener to G. W. Drabble, Esq., Los Altos, Sandown, staged Crotons, Palms, and Dracænas; Mr. James Mackett, Bembridge, a dish of Sutton's Ringleader Potatoes; Mr. Hy. Love, Sandown, blooms of Duchess of York and Lago Maggiore Chrysanthemums, the former from a cut-down plant last November, and the latter from an autumn-rooted cutting; and Mr. C. Orchard staged blooms of Duchess of York Pink, a sport from Mrs. Sinkins, which was pure white with crimson base. A unanimous vote of thanks was accorded the writer and reader of the paper, and also to those who had forwarded exhibits. Mr. S. Gibbs, C.C., who is an enthusiastic educationalist, spoke on the importance of horticulture in the Garden Isle, and of its development during the existence of the County Council, and the scope that still exists for further development. Several new members were elected.

— FLOWERS IN NEW YORK.—The prices of flowers were, perhaps, never so low in this city as they were one week in May, when Carnations brought as little as 1 dol. a thousand, and a regular rate for Roses was 5 dols. a thousand. Indeed, many of the highest-grade flowers could not be disposed of at any price. Besides the close of the social season, another reason for the slow sales, says an American journal, is the abundant use of sprays of Lilac and other early spring flowers, both wild and cultivated, and flowering branches of trees and native shrubs for church and other decorations. These flowers are for sale by the armful on the street corners, or they can be had for the picking almost anywhere in the suburbs.

— A DOUBLE WHITE ANEMONE CORONARIA.—Notwithstanding the number of white flowers which we now have to choose from, any new one is welcome if it be of distinct merit. For this reason we anticipate that the new double white Anemone, of Messrs. E. H. Krelage & Sons, Haarlem, Holland, will be well received. The variety is named The Bride, flore pleno, having originated from the well-known single variety of the same name in the nursery of the above named firm. The flowers are of good size and substance, travelling well through the post. The colour is silvery white tinged with green when the flowers are young, this giving place to cream as age is gained. We understand that Messrs. Krelage & Sons will offer bulbs this autumn.

— TOMATO HEPPER'S GOLIATH.—This is an old variety; indeed, having regard to the average existence of varieties, it is a very old one. Mr. Hepper raised it when gardener at The Elms, Acton, some twenty years since at least. It is of the Trophy type. I saw it growing recently in a low lean-to house at Woodhatch, Reigate. Mr. Salter mentioned that he found it there when he went to Woodhatch, and he has grown it ever since. Howsoever old, it is there at least a wonderfully prolific variety, cropping enormously. The plants are throughout full of racemes of flowers of immense size, and the ripe fruits are large, very solid, rich in colour, and handsome. No doubt it has been improved by yearly selection from the best fruits, but no new variety could possibly excel this old one in productiveness. The plants are growing in a long wooden trough 16 inches wide and 8 inches deep, and are planted at 15 inches apart. In spite of this restriction of root area they promise to go on fruiting for several months.

— WAKEFIELD PAXTON SOCIETY.—Programme of meetings for the second quarter, session 1897:—Meetings are held at the Paxton Room, Woolpacks Hotel, Corn Market, Westgate, each Saturday evening, at 8 o'clock prompt. June 12th, Wild Flower Exhibition, essay by Mr. G. Bott; June 19th, "Wild Birds: Useful and Injurious," Mr. C. F. Archibald, Yorkshire College; June 26th, "A Talk about Hardy Flowers" (specimens of alpine or herbaceous plants may be brought for naming), Mr. John Wood, Kirkstall; July 3rd, "Heating and Ventilation," Mr. J. Thomas; July 10th, The Pelargonium Exhibition, essay by Mr. W. E. Corden; July 17th, "Room and Window Decorations," Mr. L. Twigge; July 24th, The Rose Exhibition, essay by Mr. T. Wilson; July 31st, The Carnation and Picotee Exhibition, essay by Mr. Allison; Aug. 7th, Afternoon Visit to Woolley Park; Aug. 14th, "Our Apple Trees," Mr. J. L. Pickard, Leeds; Aug. 21st, "The Begonia" (with specimens), Mr. W. H. Vere; Aug. 28th, "The Gladiolus," Mr. W. Hudson.

— ANOTHER PRESENTATION TO MR. DAVID THOMSON.—We have previously recorded the presentation of a marble timepiece to Mr. Thomson and silver plate to his daughter by the working staff of Drumlanrig Gardens. As we are going to press we are apprised of other presentations, to which we can only very briefly refer. Last week the Rev. David Black headed a deputation, and in well-chosen expressions of the appreciation of the high character of Mr. Thomson, his devotion to and punctuality in duty, his modesty of demeanour, and natural kindness, asked his acceptance of an ornate clock, also a binocular glass, and of Miss Thomson the acceptance of a gold bracelet, set with brilliants. The clock, with four gongs and eight bells, bears the inscription, "Presented by some friends and acquaintances in Nithsdale to Mr. David Thomson, Drumlanrig Gardens, in token of their esteem for his personal character and professional eminence, 1897." In accepting the gifts Mr. Thomson referred to the sore wrench, enforced by time, of leaving his beautiful home and the superintendence of the premier gardens of Scotland, as well as of valued friends and fellow servants, with not one of whom he had ever had the shadow of an unpleasant word, concluding with what Naomi said when parting with her daughter-in-law—"May the Lord deal kindly with you as ye have dealt with mine and with me." Mr. Thomson will, we understand, reside in future at Eskbank, near Dalkeith.

HER MAJESTY'S DIAMOND JUBILEE AND THE "JOURNAL OF HORTICULTURE."

IN celebration of the great historical event, now approaching, it has been decided to publish an enlarged issue of this *Journal* on the 24th inst. It will be devoted to a fuller description of the gardens of the Queen than has yet appeared, together with a general survey of horticulture, in the form of interesting reminiscences during a period of sixty years, by the Rev. H. H. D'Ombra.

For the purpose of this issue her Majesty has been graciously pleased to grant to the Editor unrestricted permission to illustrate and describe the Queen's beautiful private gardens at Frogmore House, and to enumerate the unequalled collection of Royal memorial trees therein, the first time, we believe, that this privilege has been accorded.

In addition, the past history and the present condition of the gardens at Windsor Castle, the slopes, and Adelaide Cottage garden will receive adequate attention, while descriptions will be given of the great supply gardens at Frogmore, Royal Lodge gardens, the noble Vine at Cumberland Lodge, the Royal pavilion gardens at Virginia Water and Aldershot, the Hampton Court Vine and private gardens—all these being under the direction of her Majesty's head gardener, Mr. Owen Thomas, F.R.H.S. At the same time will appear illustrated descriptions of the Royal gardens, Buckingham Palace, Osborne, and Balmoral; also, by direct sanction, a portrait of her Majesty.

We have reason to believe that such an issue, for which (though of necessity costly) no extra charge will be made, will be acceptable to our readers as a memento of a happy and unique event. We make this notification for two reasons.

1, The possibility of the matter and illustrations occupying the whole space at disposal, and therefore that reports of shows and even answers to correspondents may have to stand over.

2, To give notice that the issue will have to be prepared a week in advance, and therefore those readers who desire extra copies for preservation or presentation to friends should order them *at once*, either through local booksellers, railway bookstalls, or direct from the office, 171, Fleet Street, E.C., to prevent disappointment, which we desire to avert.

We undertake to give more than value for money, and fear that unless orders for extra copies are given before the 17th inst. many applicants will be too late.

STYRAX OBASIA.

THIS is known to few except botanists and those who have made a special study of trees and shrubs. It is said to be a native of the province Senano in the Island of Nippon. The leaves when of full size are 8 to 10 inches in diameter, nearly round in outline, frequently irregularly and deeply serrated at the apical margin, of a light soft green, much like the Catalpa. The tree is bushy in habit, producing its pure white flowers in racemes 6 to 8 inches long, the petals somewhat narrow and pointed, as shown in the illustration. The leaves depicted there, however, are those found at the base of the racemes on the flowering branches, and are not nearly so large as the mature leaves lower down the branches. It has proved quite hardy in a southern garden, where it stands on a slope moderately sheltered by hedges.

AN ESCAPE FROM BABYLON.

MR. AND MRS. ANCIENT BRITON (to be hereafter referred to as A. B.), and two others being tired of town life for the time being, decided upon an escape into the country. Though fond of gardening, and more or less associated with it, they had had enough, again for the time being, especially as some of them, at least, had been in one way or another officiating at the Temple Show; in what precise way it is not necessary to particularise; they only liked to feel they *had* been "officiating," though if the matter were probed to the bottom it might possibly have resolved itself into the fact that they had simply been there.

Well, it was something to have been drawn into the vortex of the fashionables, and almost overwhelmed with the wondrous beauty of the Orchids; the pure and ruddy charms of the Roses; the brilliancy of the Begonias; the chaste and cheering coloration of the Caladiums; the great glistening sea of Gloxinias; the spick and span and sparkling Streptocarpuses; the toothsome-looking, but noli-me-tangere Nectarines, and other fruits; the mouth-watering Mushrooms; the potfuls of perky Peas, as if asking to be picked; and Potatoes pressing their noses against the windows of the boxes in which they are confined, as if to say, "We are not to be sneezed at;" yes, it was something to have been there, and

bewildered—something to have had enough of everything—so much indeed as to make us wish, if not cry, for a change.

"What a glorious art is gardening," remarked Mr. A. B. to the Scribe; "what would the world be without it, I wonder!" "Not the bright and beautiful world it is, certainly," was the obvious reply; "but all the same, don't you feel these shows a little—well, a little humiliating?" The response came hesitatingly, but as it proved, understandably, "N—no. I can't say I exactly feel that; on the contrary I feel rather proud of them—proud to think that we," a very slight emphasis on the "we,"—"can do so much." That was a natural reflection on the part of Mr. A. B., who happened to be in the honour's list, but his friend, who had got nothing, was the reverse of elated—in fact the conceit had been taken out of him, as competition *does* take it out of not a few, who when leaving home are "sure of a prize if the judges know their business." Poor "S." felt that he could do nothing like what others had done, and the show seemed to have at the moment lost its charms for him, and he seemed (and felt) anxious to get out of it.

To get quite away from it was, however, another thing; but happily the fates favoured, for Mr. A. B., "full" of his glorious theme, sententiously remarked that the "world without gardening would be a forest." Lucky word, a "forest." The theme was changed in a breath, the exit clear. "Ah, my dear A. B., do you not remember how happy the late Lord Beaconsfield was in his own 'green retreats,' in which he said, however attractive some other things were for a time, they in time wearied, but that 'sylvan scenery never palled.' You must know that Mr. A. B. is perhaps a 'bit of a Tory,' though it is hard to tell. Suffice that his attention was caught, and that gardens were for the moment left behind. It was clear enough he wanted to sing, but he couldn't quite remember the lines:—

"In the days of old when forest and glade
To the hunter's horn were free,
And the merry men rode through brake and glen,
To meet at the trysting tree."

"If you see an advantage seize it, and seize it promptly," is a maxim worth remembering; and so it came to pass that a suggestion was made for a day in a forest. "With all my heart," was the response of the ardent gardener, "but what forest?" The bow was drawn at a venture. "Have you been to Epping?" A good shot, because it brought down a "No, never." Then, aside, to Mrs. A. B., "What do you say to a day in Epping Forest?" Promptly came the reply, "Delighted!" "And you, Mrs. S.?" "Oh, charmed!" Libel the ladies as you will on their loquacity, but please recognise the force of their laconisms in settling in a moment what a pair of gardeners might prose over for half a night.

It so happened that none of us had been to Epping, and the combined knowledge of the group was not equal to a solution of the problem as to how to get there, or rather, as to the station to which to book for the best. The Forest was thought to be in Essex, and therefore most likely to be reached from the capacious city terminus of the Great Eastern Railway in Liverpool Street. But the Forest station was the difficulty. We were told that Woodford and Cheshunt, Buckhurst Hill and Theydon, Waltham Cross and Epping were on the borders. But as borders in gardens vary from 2 to 10 feet or more, it was thought they might vary in Nature to as many miles, and so a decision could not be arrived at. "What stupid we must be," observed one of the four, after a long pause; "has not Mr. George Paul a place in the Forest?" The problem was solved, and forthwith went the following letter.

"Dear Mr. Paul,—Mr. and Mrs. A. B., the former of whom you will know by sight, and the latter is worth knowing, are with self and Mrs. S. consumed with a desire to escape from Babylon with all its crush and hurly-burly—the hoisting of deals and the noise of hammers in fixing up tiers of Jubilee seats from the ground to the house tops. We want to get away from this, if only for a little while, and spend a quiet day in Epping Forest; but as our geographical ignorance is colossal, the favour of your advice as to the arrival station and route will be gratefully appreciated." Quickly came the following reply, "Dear Mr. Scribe,—Don't come to any of the stations you name, but book to Chingford; trains from Liverpool Street every half hour; comfortable barouches to hold four await all trains. I am staying at my cottage at High Beech for a fortnight; drive there—only two or three miles. I will show you the pretty features round the Beeches, and point out botanical treasures, going with you as far as what we call the Drosera field, where we find *Lycopodium inundatum* (Marsh Club Moss), and then I could direct your driver to Epping and Theydon

and back again to Chingford." A stroke of luck surely, and Liverpool Street at eleven o'clock was fixed as the place and time of meeting.

[But what a morning! The thunder, as it seemed, shaking the world, the rain falling in torrents. What is to be done under such circumstances? The answer is plain. When an appointment is made keep it, no matter what the weather may be. So evidently thought the Britons, and the meeting took place to the moment. To go or not to go further then became the question. "We had better go," said one. "Hear, hear," said the other; "better start in the rain and finish in the sun, than start in the sun and finish in the rain." And so the matter was settled. A race to the booking

stand, and be happy in either; but I can't be happy in a second," said he. But why? "Because," he went on, "it makes me look and feel too conceited for a third yet not able to raise the wind for a first, and I don't like it." This genuine man, without guile, has long since gone, without the experience of travelling third from Epping Forest with nineteen or twenty others in a compartment made for ten, or he would gladly have given a few more pence for a little more room wherever he might find it.

But we are at Chingford, and the rain has practically ceased. "Now, Mr. A. B., you are a judge of horses, choose a good one"—for there was plenty of choice. He suggested a pair. "A pair; no, there are no pairs here, and besides there is not much more



FIG. 97.—STYRAX OBASSIA.

office, and the best man won. "Four second returns Chingford." No, it was not particularly extravagant—twenty-two miles for 1s. 4d. a head, or body; but it calls to mind an episode.

It is not the old chestnut of the Bishop travelling "third" because there was not a fourth class, though that may be true, as something else is most certainly. Some years ago, more than one likes to count, a band of horticulturists, rich and poor, went on a fruit-exploring expedition into Kent. At Victoria Station some of the latter, not liking to "look" their worst, boldly asked for "second returns." The rich ones followed suit—a delicate act, such as is only seen from thorough gentlemen. They would have no distinction in classes then, and abandoned the usual "firsts." Only one of the party grumbled at the "second" class, and a good man too—the late celebrated market gardener of Chiswick, Mr. Frank Dancer. "First I can understand and third I can under-

than a quarter of a ton of us, and a good animal won't mind that." The best was chosen, and trotted along with ease, especially a little down hill. A somewhat similar party of four once took tickets from Wallington to the next station, Waddon, near Croydon. While waiting for the train the time was passed in weighing. Not being midgets the results were watched by others, and especially by a dainty little porter. "What class, sir?" as the train was coming up. "Oh! third, of course." "All of you?" "Yes, certainly." The scorn of the man was a treat to see, as he shouted, "Of all the cheek! Here is a party weighing twelve stone over a quarter of a ton, all going for sixpence (1½d. each), and then folk howl about railway rates." He scored that time, and was happy amid the hilarity.

When the great Forest of Epping was secured by the Corporation of London as a breathing ground for the people some twenty

years ago, it was opened by the Queen. A triumphal arch was erected over the station, and it remains to this day, minus, of course, the trappings. We proceed to the Forest, close by, between an avenue of young Limes, passing an imposing hotel, and Queen Elizabeth's hunting lodge. On the right are stately trees, standing at sufficient distances for development on the green sward; on the left, an open, treeless, undulated plain—golf links of 300 acres. The excellent road gradually rises through a cold, damp, clayey portion of the Forest, in which the few trees are stunted; but as we ascend, the land and trees improve, and we are soon in almost an impenetrable forest of healthy Beeches. By sundry twists and turns the higher level is reached, and we are suddenly overlooking glowing masses of Rhododendrons, amidst which an ancient cottage seems to nestle. A charming spot is this—the High Beech Nursery of Messrs. Paul & Son, Cheshunt. It is an opening of some twelve or fourteen acres in the middle of the Forest, surrounded at a little distance on all sides by a lofty wall of Beeches. Mr. William Paul, we were told, has a still larger extent somewhere not far distant. These nurseries were only retained after a keen legal contest.

When the Forest was acquired for the public, residents who had settled on it could only retain the land they occupied by proving a certain number of years' possession, often no easy matter. When high authorities personally inspected the enclosures in dispute they called at a fortunate time. In the grounds attached to the cottage mentioned is, among other features, an avenue of Rhododendrons—splendid standards, with huge heads covered with noble trusses rising from a base of young flowering shrubs and hardy Azaleas. When the inspectors looked down this flowery avenue, as we did, they appear to have been enchanted. They could not advise its being given back to Nature, but yet had to consider the question of public interest, and the matter was settled on sensible lines. They obtained for the public access to the nursery (except the small cottage enclosure), and in return recognised the proprietary rights of the present owners. This beautiful nursery is, then, open to the public, far more benefit no doubt resulting to the proprietors by the advertisement than loss by the possible plucking of a flower.

It is fair to say that Mr. George Paul did not press us to inspect his treasures, for he is a connoisseur as well as a nurseryman; but offered us a warm cottage welcome, and was ready to show us the Forest, as a greater novelty to us than his "cultures;" but Mr. A. B. went straight for the great masses of colour, and the rest had to follow. Rhododendrons are at home at High Beech, in all sizes and all colours, from the smooth purity of Mrs. John Clutton to the richest of all the tribe, the fiery Prometheus. There were several blanks in the rows it is true (nurserymen rather like to see them), for a great man had drawn on the stock to no small extent—Mr. Cecil Rhodes—and took the shrubs off by hundreds; but there were plenty left to make the Forest glorious. And then there were the masses of Mollis Azaleas, notably the standards—dense bouquets of beauty. Mr. A. B. made a dart for one of them, to read its name on a ticket; it was simply "sold." Another and another, with the same "name." At last he remarked, in a sort of disappointed way, "They are not all sold; are they, Mr. Paul?" "Oh, no; not all." "Then I want some, and please do not forget." It was rather firmly spoken, and Mr. Paul will, perhaps, "not forget."

Mr. Paul is becoming more and more interested in his new race of early hardy Rhododendrons. Some years ago he applied pollen of some of the rough recurving-leaved catawbiense varieties to flowers of the long flat glossy leaved Chinese Rhododendron Fortunei. He has numbers of resulting varieties flowering in various colours, and the effect of the crossing is unmistakeable. The "Catawbs" have given colour and boldness of truss, Fortunei large open flowers, like Azaleas, with long peduncles, and hence open trusses, the foliage varying, but mostly smooth. These seedlings are quite distinct in character, thoroughly hardy, and as a rule flowers decidedly in advance of the bulk of Rhododendrons in cultivation. A few have been named, and found favour, notably the Duke and Duchess of York. It is slow work raising and growing, flowering and selecting Rhododendrons and hardy Azaleas, and then there may be a hundred times more blanks than prizes; but Mr. Paul hopes he has fallen in for a few of the latter, though he seems to think more of lengthening the Rhododendron season by gaining a week or two at the beginning of it than anything else.

The soil of this forest nursery seems largely composed of Bagshot sand and gravel, darkened by humus, the result of the decay of vegetation through the centuries, though it may also

contain a trace of clay. It has only been brought into its present condition by much labour; but there is the reward not in Azaleas and Rhododendrons only, but in a grand plantation of Araucarias, and truly magnificent specimen Hollies, kept moveable; and, besides, Tea Roses grow with a freedom rarely seen, and must take up with "wigs" of roots from such a medium. Hybrid Perpetuals do not answer, but that is of small consequence, as there is not room enough for them if they would, and they are happy enough at Cheshunt, some five or six miles away. We must be "away," too, as we have lingered more than the intended quarter of an hour, and Mr. Paul now takes us to the "Drosera field," in which numbers of the little Venus' Fly-traps stud the swampy ground. We had not time to hunt for the Lycopods, and instead of dropping Mr. Paul at his cottage he had to endure a four or five miles drive along the London and Cambridge Road, right through the Forest to Epping, and stay there for a little while at a famous old-time hostelry.

As previously from the high ground we had looked down over far spreading Herts, now on the return journey we took the other side in which Essex was brought for a time within the line of vision; but we were soon among the trees again, passing through rustic rural Theydon. On one side the trees had been thinned for a distance, the appearance being somewhat park-like, the other side wild. While a little change may be desirable here and there, and fine trees opened out, it is easy to do too much thinning in a real "forest" like this, where, generally speaking, "nature unadorned" presents the greatest charm. No doubt Mr. McKenzie, the superintendent (whom we did not see) is aware of this, and considering his training under his father, the late respected Major, the forest should be safe in his keeping. Artists burst out in complaints from time to time, as is their wont, and they may perhaps do a little good. We saw nothing to complain about in an enjoyable drive through or past some 6000 acres—mountains and valleys of trees—Beeches, Birches, and Oaks, dappled in various tints of green. It was pitiable, however, to see the larvæ of the winter moth devouring the Oaks, though the observant "A. B." remarked, they let the Turkey kind alone—a hint for future planting.

We left Mr. Paul (to whom we were so greatly indebted) near his cottage, and on reaching Babylon again agreed that we had experienced a day of delight, and that we should not fail to keep the next appointment, if it fell on a rainy morning. "Come, haven't you done?" whispers someone, looking over a shoulder; "I am sure you ought to apologise." "I would if it wasn't holiday time, when they will excuse the Forest ozone," replied—THE SCRIBE.

SUMMER BEDDING.

(Concluded from page 477.)

No portion of the garden is more beautiful and interesting in the summer than the water garden. If you have the smallest stream of water running through any part of the garden it may be turned into a very beautiful and interesting feature, by making a number of small ponds or beds of water, to be planted with aquatics, and amongst and round about these pools may be made beds of Cannas, Castor Oil plants, Lilies, Hydrangea paniculata, Fuchsias, Eucalyptus globulus, and Japanese Iris (Iris Kämpferi). The ponds must be made of various depths to suit the different water plants, and should be in the full sun, and sheltered from rough winds as much as possible. The sides and bottoms of these ponds must be watertight by puddling with clay or cement, afterwards making a good mud bottom. The warmer the water can be kept during the summer the better the plants will thrive, therefore if your supply stream is a fast-running one have just enough water entering the ponds to keep them overflowing. The remainder of the water not required may be turned another way, and hardier moisture-loving plants grown by the side of it, such as Spiræas palmata, palmata alba, palmata elegans, Aruncus, astilboides, and japonica compacta; common yellow Iris, Iris Kämpferi in great variety, variegated Rushes, Bamboos, Lythrums, Lobelia syphilitica, hardy Carex, Bullrushes, Water Flags, Gunneras manicata and scabra, very noble plants with immense leaves, and not forgetting the Marsh Marigolds, Caltha palustris, palustris pleno and alba; Primulas japonica and rosea, Limnathes Douglasi, Saxifraga peltata, a beautiful flower, also Saxifraga Fortunei; Cypripedium spectabile, Sarracenia purpurea and Parnassia, while on the banks may be grown patches of Lilium lancifolium rubrum, roseum, album and Krætzerei, Montbretia crocosmæiflora and Pottsi, groups of Cannas, patches of Cowslips and Primroses, Narcissus, Fritillarias, Chionodoxas, Trilliums, Snowdrops, and Crocuses. The artificial ponds should not be made to look too formal, and if the sides are cemented let the green grass come over to meet the water, so that the cement may be kept out of sight.

In the first pond, with about 2 feet of water and 6 or 8 inches of mud, plant Nymphaeas gigantea (white), carolina (clear rosy pink); Nuphar

lutea (common yellow Water Lily), Nuphar advena (yellow American Lily); Nymphaea alba (common white Water Lily), Hottonia palustris (Water Violet), Aponogeton distachyon (Water Hawthorn), Stratiotes aloides, a plant like a Pandanus, with white flowers. In the next pond, with 1½ foot of water and 6 or 8 inches mud, which depth I find suits most of the Water Lilies best, plant in the centre Nymphaea Marliacea chrometella (cream coloured, a most perfect and beautiful flower, which will bloom freely from June till October), on either side Nymphaea Laydekeri rosea, a bright carmine rose coloured flower; and Nymphaea Marliacea carnea, a grand bloom of beautiful flesh colour. These should all be quite 4 feet apart. Now you have a good centre, and round about these plant the following sorts, 4 feet apart:—Nymphaea odorata sulphurea (a sulphur yellow, with large blooms and marbled leaves), Nymphaea odorata rosea (very fine rose colour), Nymphaea Marliacea albida (a grand white), Nymphaea odorata Exquisite (rather dark rose colour, but not quite such a strong grower as many), Nymphaea flava (bright yellow), Nymphaea Laydekeri liliacea (a new colour amongst hardy Water Lilies; this I think will prove a grand thing, but it is too new to say much about at present), Nymphaea candida (white), Nymphaea rubra (rather darker than carnea, in other respects very similar), Nymphaea alba plenissima (a perfectly double white). These will produce a fine display of flowers that will be greatly admired by all who see them in bloom. I know no flowers which look so beautiful on a hot summer's day.

In pond No. 3, with water 1 foot deep and 6 inches of mud, a great variety of plants can be grown, and most of these will stand above the water, both foliage and flowers. These look best in groups, kept to their sorts. In the centre place a group of Arums, Richardia æthiopica, with Pontederia cordata (blue spikes of flowers), planted about 4 feet from the Richardias on the one side, and Butomus umbellatus, the pink flowering Rush, on the other. The two remaining sides can be furnished with Sagittaria montevidensis, which has long spikes of white flowers with dark chocolate centre. This is a fine plant, but it should be protected in the winter. The remaining part of the pond can be filled with groups of Sagittarias japonica, single white flower; japonica pleno, a splendid pure white double variety; gracilis, a very pretty, graceful variety, white single flowers; and variabilis, white flowers, with darker centre, and closer set up the stems than the other varieties; Peltandra virginica, a small Arum-like plant; Arontium aquaticum (golden club-like flower), and Alisma plantago, panicles of small white flowers. These should be all planted with a good space of water between each group, and in that space small floating plants may be utilised, such as Nymphaeas pygmaea, pygmaea helvola, and Nuphar Kalmianum, sagittæfolium. The water in the fourth pond should be 6 to 9 inches deep, with mud and plenty of gravel stones at the bottom. All the following plants will do well here: Menyanthes trifoliata (a feathery pale pink flower), Calla palustris (white), Limnobaris Humboldtiana (a very beautiful pale yellow), Alisma natans (white), Villarsia nymphaeoides (yellow), Villarsia ovata (panicles of yellow flowers), and Utricularia vulgaris (small yellow spikes). All the plants I have mentioned for the various ponds might be grown in one, if sufficiently large, and the water at various depths, from 2 feet to 6 inches. Close to the edges, touching the water, may be planted Cardamine pratensis, both single and double; Calthas of sorts, Saxifragas Fortunei and peltata; Sarracenia purpurea, Cypripedium spectabile, small herbaceous Spireas, and Parnassias.

I find the best way of treating the choicer sorts of water plants is to place them in Orchid pans, in well decayed loam, and covered with half an inch of coarse silver sand, then sink the whole into the mud. The sand keeps the soil from floating out of the pot when sinking it, and afterwards, the plant will soon root through the holes and over the top of the pot and take care of itself. The commoner sorts may simply be pegged down to the bottom with strong, long, wire pegs, or sunk by means of fastening a piece of lead to the roots. Some of these Nymphaeas make very long, strong, and large leaves, and if not carefully looked after will soon spoil the weaker growers, so the old leaves and those in the way should be kept pulled off from time to time. Near to these beds of water plants a good group of mixed Cannas, with a few herbaceous Phlox of different colours dotted amongst them looks well, and large Fuchsias, with Erythrina crista galli and Swainsonia alba, are also effective.

A pretty feature near the ponds in our garden is a large irregular mound, with a common Thorn in the centre, and a few flowering shrubs, planted a distance apart, on the top. Round the outer edge of these shrubs are planted Hydrangea paniculata, and amongst these shrubs in the summer are dotted in Cannas of various sorts and clumps of herbaceous Phlox. In the sloping bank tubs of Lilies have been let in here and there, and all round irregular stones are fixed, the spaces between being filled up with all sorts of small-growing plants. In August and September it looks charming, and is always much admired; perhaps more so because it is something out of the usual way of bedding. —(Read by Mr. W. TOWNSEND at a meeting of the Reading Gardeners' Association.)

POISONOUS BUTTERCUPS.—The Lancaster coroner recently held an inquiry into what he described as one of the most extraordinary poisoning cases that had come under his notice. A boy, aged four, named William Foxcroft, ate some Buttercups—one of the commonest flowers gathered by children—and died in a few hours from irritant poisoning. It was stated that Buttercups belong to an extremely poisonous class of plants. A verdict of "Accidental poisoning" was returned.

INSECT INVASION.

So the lightning performer with the pen (see footnote to his article, p. 479) is not a gardener. I rather thought as much. I am referring, of course, to our well-lettered friend, "Y. B. A. Z." I am really not concerned about the arrangement of the familiar symbols first from end to end and *vice versa* of the alphabet (nearly), and next absolutely. I have sometimes wondered what they meant, but never whose they were. The only meaning that I could attach to them was that their genial owner was a Young Bachelor of some Association of Zoologists. If that should be so, I quite agree with the septuagenarian young bachelor that there is "some charm about a *nom de plume*," and I would not have this one of more than thirty years wear and tear changed for the best insect antidote in the world. It is, apart from its familiarity, altogether too picturesque.

I have, in a curious and unexpected way, made a discovery in which I am sure our friend will be interested. He will see a case of history repeating itself, and, at the same time, admit that he incited curiosity as was recorded, as near as I can calculate, thirty-two years, four months, and ten days ago. Now Mr. "Y. B. A. Z.," I can almost fancy hearing you ask yourself, What's coming next?

Do you remember inviting a gentleman who had been adversely criticising Malay fowls to come and see yours and be confounded? then do you remember when he arrived that you would not let him see them till after lunch? and next, do you recollect raising the cover at table and revealing a roasted Malay, which the critic was obliged to confess was "most excellent?" Yes, all this will come back to you as a pleasant episode, when, in a very old-fashioned way for a young man, you had the critic "on toast."

Again, do you not remember the way in which your "cognomen" incited interest then, not to say vain imaginings; how the critic was asked whether the four letters stood for a lady, and, if so, whether she was married or single, short or tall, dark or fair; but he thought prior to his visit they belonged to a gentleman—an Oriental?

Possibly you may remember his reasoning it out in this way—"I looked at the letters, looked again, and then broke out triumphantly: I have it; he is a Persian gentleman; remove the periods between the letters and have but one capital, and the Oriental name comes out clearly enough in this way Ybaz." He imagined you as a merchant from Shiraz or the Vale of Cashmere, expected to see you in Persian costume, and to hear you quote the poems of Hafiz. But when he met Ybaz he grasped the hand of a thorough Englishman, and you were friends at once; then he says, "Ybaz exclaimed, 'There is the bond,' pointing to our Journal."

This is very pleasant. The Journal has made many friends between its readers, and than this, I think, evidence has not been wanting throughout its career that nothing could be more gratifying to its editors.

No, I am not the critic in disguise, and not the first to be interested in the "alphabeticals;" and you, Mr. "Y. B. A. Z.," ought to be glad to incite the imaginations of your readers as a relief from the dull prose and grind of toil which tends not to gladden the heart.

But how do I know the details of the meeting and the Malays, of the Ybaz and the critic, and all the rest of the doings of that day in the West which you are now in fancy living over again and enjoying? Are they not written on page 98, vol. viii. of the *Journal of Horticulture*, the weekly issue of January 31st, 1865? No, I did not hunt the narrative out because I did not know it was in less than a week ago. Entering a library I took the volume to look for something (that was not in), and the first casual opening was at the very page on which the narrative of "Wiltshire Rector" appears—a curious "find," under the circumstances. It was, and is, much more interesting to me than insects, and I am asked (on page 479) to say but very little about them.

I should be surprised if I ever suggested that "fumigation cures red spider." Vines and Peach trees have just been closely scanned, but not a solitary mite can be found, I think, by anyone. This was not always so. The eggs were destroyed in the winter, as they easily can be by a method that has over and over again appeared in the Journal; then with thoroughly healthy growth in root, branch, and leaf, a genial atmosphere and pure water syringings, of Peaches regularly, Vines very occasionally, both are as they are, absolutely clean, as I shall be very pleased to show the old journalist when his "time and temper" permit. As in the case of "spider," there can be no aphides without eggs, nor eggs without insects, and these can easily be kept out of houses by half strength fumigations that would be necessary to kill a good crop of the pests. It would no doubt be the same with vapourisation—always before an insect is seen—at fortnightly or three-weekly intervals in spring and early summer, according to the weather, much less frequently as the season advances. Then, if no mistakes are made in watering, ventilation, and general management, plants may be, and are, kept absolutely clean. It is a case of no eggs no insects, or no insects no eggs, whichever way you like to put it. Of course, not half nor perhaps a tenth part of aphides come direct from eggs, but these are the original source of supply.

A point too often overlooked needs to be strongly enforced. Many persons, and not amateurs only, invite insects by errors in watering, heating, ventilation, and general routine under which the health of plants is so impaired that their enemies seem to find them by a sort of instinct, or in other words they choose the points of least resistance. Of this there can be no doubt whatsoever.

There is neither novelty nor difficulty in keeping insects out of fruit and plant houses, when the best cultural skill is displayed, and means

are afforded for accomplishing the object. I have lately been through two very large gardening establishments in which the work is of the best, and not an insect of any kind was seen on plants, Vines, or trees in the scores of houses in which they are grown, and I could go into a dozen gardens and find the same gratifying immunity. The most successful cultivators do not kill insects; they prevent them. It is pleasurable to hear that "Y. B. A. Z." is practising successfully on the same lines, and I hope he will remain in his situation for yet many years to come.—W.



ROSE SHOW FIXTURES FOR 1897.

- June 15th (Tuesday).—Ryde.
 „ 16th (Wednesday).—York.†
 „ 18th (Friday).—Portsmouth (N.R.S.).
 „ 23rd (Wednesday).—Richmond, Surrey.
 „ 24th (Thursday).—Colchester.
 „ 25th (Friday).—Maidstone.
 „ 26th (Saturday).—Windsor and Dorking.
 „ 29th (Tuesday).—Canterbury, Hereford, Sutton, and Westminster (R.H.S.).
 „ 30th (Wednesday).—Croydon, Ealing, Farnham, and Reading.
 July 2nd (Friday).—Crystal Palace (N.R.S.).
 „ 6th (Tuesday).—Diss.
 „ 7th (Wednesday).—Glasgow, Hanley,* Hitchin, Reigate, Leeds,† and Tunbridge Wells.
 „ 8th (Thursday).—Bath, Bedford, Farningham, Gloucester, Harrow, Newcastle-on-Tyne,† and Woodbridge.
 „ 10th (Saturday).—Manchester.
 „ 13th (Tuesday).—Wolverhampton.†
 „ 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 „ 17th (Saturday).—New Brighton.
 „ 22nd (Thursday).—Halifax and Trentham.
 „ 27th (Tuesday).—Tibshelf.
 „ 28th (Wednesday).—Chester.*
 „ 31st (Saturday).—Liverpool.*

* Shows lasting two days. † Shows lasting three days.

The above are the only dates that have as yet reached me. I shall be glad to insert in the next list any further fixtures that may be sent me, whether of Rose shows or of horticultural exhibitions where Roses form a leading feature.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

THE WALTHAM CROSS ROSES.

MESSRS. WM. PAUL & SON invite inspection of their great show of Roses, which will commence flowering in the middle of June, and which promise to be in fullest bloom about the middle of July, followed up by a succession of flowers to the middle of October.

COMMENTS AND IMPRESSIONS.—MANURES.

(Continued from page 479.)

THE first season after planting the young Roses in the three beds made good growth, but the vigour was more marked in the guano bed than the others, the stable manure coming next, and the bonemeal third; but some differences were observable; for instance, *La France* and *John Hopper* in the guano bed were much in advance of the same varieties in the stable manure, while the growth of all the varieties was very uniform where bonemeal was used. A few flowers were obtained, but nearly all these were from beds 1 and 3, the guano having apparently had too stimulating effect, for only the two varieties above named flowered, and they had imperfect blooms. In several cases it was fancied that the effects of the bonemeal were shown in more substantial flowers, but the results were not sufficiently clear to enable an exact judgment to be formed.

In the autumn the plants were all cut-in rather hard, and the applications were repeated in the same quantities and at corresponding dates. The results in the following season were much more apparent than before, both in growth and flowers. As regards the former the greatest vigour was shown by all six varieties in the guano plot, those in the stable manure plot were next, and the plants in the bonemeal bed were the least vigorous, but they were strong enough, and again were more uniform than the others. The order was reversed in the floriferousness of the plants from the respective beds, for those in No. 3 plot (bonemeal) produced quite 10 per cent. more flowers than either of the others; the blooms were larger and of more substance, and the colours purer. *La France* showed the greatest difference in these respects, and *Niphotos* the least.

There was enough in these observations to justify further research, and I had determined to try the effects of both nitrogen and phosphoric acid in a simpler form, when a friend called my attention to the fact that I was partly repeating experiments previously undertaken by the

veteran rosarian, Mr. William Paul. Though possessing a tolerable library of Rose literature, I unfortunately had not a copy of the "Rose Garden;" but I subsequently found that Mr. Paul's experiments had taken this form. Six beds of Tea-scented Roses received dressings respectively of bone dust, burnt earth, nitrate of soda, guano, pigeon dung, and thoroughly decomposed stable manure. To give Mr. W. Paul's own words, "The guano produced the earliest effects, causing a vigorous growth, which continued till late in the season; the foliage was large and of the darkest green, but the flowers on the bed were not abundant. The shoots did not ripen well, and were consequently much injured by frost during the succeeding winter. The bed manured with burnt earth next forced itself into notice; the plants kept up a steadier rate of growth, producing an abundance of clean well-formed blossoms, the wood ripened well, and sustained little or no injury from frost. The results attendant on the use of the other manures were not remarkable; they had acted as gentle stimulants, the nitrate of soda and bones least visibly so, although they were applied in the quantities usually recommended by vendors." It is rather unfortunate that the exact quantities used are not given, nor are the dates of application. Perhaps Mr. Paul could say what they really were, and also whether these very interesting experiments were continued in subsequent years.

Circumstances compelled me to relinquish my experiments after a third season's trial, but in that year superphosphate of lime was substituted for the bonemeal and sulphate of ammonia for the guano, both being given in the same quantities as the manures whose places they supplied. Perhaps it would have been more satisfactory if fresh beds had been planted for these experiments, but as that was not convenient we had to be content with what could be learned from those already planted. The growth followed practically the same order as before, but the flowers from plants in No. 3 bed (superphosphate), both in numbers and substance, were much superior to the others. Since then similar experiments have been tried at times, but not in quite such a systematic way as I should wish. The general results have, however, convinced me that a small quantity of stable manure on the heaviest soils, with superphosphate and a little burnt refuse or potash, gives far better returns, well-developed growth, and substantial blooms than an excessive use of stable or farmyard manure, either in the soil or as a top-dressing for assisting the plants in the spring. Still I should like to see what others have to say on this matter.

The keen north-easterly winds have increased the mischief wrought by recent frosts amongst our Roses, and we are rather dismayed by the appearance of the foliage, while we are waging war with numerous leaf enemies. But every rosarian must be of a hopeful nature if he desires success, and so we are looking forward to the later realisation that June or July should bring.—A MIDLAND ROSARIAN.

NEW ROSES.

DURING a recent visit to Waltham Cross, which is known as a great centre of English Rose cultivation, I had the pleasure of seeing that uniquely coloured Tea Rose *Empress Alexandra of Russia*, which I think is likely to make a good impression when it is introduced by its raiser into the wider regions of general cultivation. It is in all respects a worthy successor of *Medea*, one of the finest of existing yellow Tea Roses, not inferior in any respect, save that of climbing capability, to the *Maréchal Niel*, which it (*Medea*) equals in size and form, and transcends in perpetuity.

His latest Tea Rose, which Mr. Paul told me was associated with the name of the *Empress* by her own permission, has been described by the Waltham rosarian as a "rich lake-red shaded with orange and fiery crimson," but indeed its brilliant colour is arduous to depict. The plant is manifestly of upright habit and vigorous character, two important characteristics. It has deservedly received an award of merit from the Royal Horticultural Society. Waltham Standard and Queen Mab are also very beautiful, the former being a Hybrid Perpetual of brilliant carmine hue, somewhat resembling *A. K. Williams*, of even stronger growth and finer foliage than that far-famed Rose; while the latter is a China variety of bright apricot colour slightly suffused with orange, producing larger flowers than any other Rose of its own special class with which I am acquainted. Admirable as it is at Waltham Cross under glass, it is even finer and deeper in colour when grown in the open air. Mr. Paul's *Enchantress* I have already spoken of in previous contributions.

These, with *Lawrence Allen* (Cooling & Sons, Bath, 1896), *Muriel Grahame*, *Helen Keller*, *Marjorie* and *Mrs. W. J. Grant*, are probably the finest of recent British introductions, for several of which we are indebted to the great Newtownards rosarians.—DAVID R. WILLIAMSON.

INFLUENCE OF ETHER ON PLANTS.—It is reported in the daily press that the United States Consul at Copenhagen, has made a report to the department of state giving a description of an interesting discovery in the physiology of plants made by *Johannsen* of the agricultural high school of Copenhagen. The discovery is that plants are susceptible to the influence of ether or chloroform, but in their case the effect is to awaken them instead of putting them to sleep, as would be the result with human beings. Also the plants are made to grow with great rapidity in or out of season, a fact of importance to gardeners and florists, providing the statement is correct.

BAPTISIA EXALTATA.

SUCH is the name of the plant of which "Devonian" sends us a specimen for identification. It is a North American plant, whence it was introduced to this country in 1812, but it is now seldom seen in gardens. Occasionally in old borders of herbaceous plants specimens are seen of this and other Baptistias, though in good soil and with ordinary attention they are much more effective than many occupants of our gardens. Clumps, with stems 3 or 4 feet high, and bearing large racemes of bright blue flowers (fig. 98) produce a fine display, and are very useful as a background to dwarfier plants.

FLOWERS IN THE HOUSE.

TWO great principles underlie the arrangement of flowers in vases or glasses, just as they do the arrangement of plants for effect. We sometimes see what are described as light, graceful, and elegant arrangements of flowers, which instead are a conglomerated mixture of flowers, Ferns, and graceful sprays of foliage. The filling of flower glasses for room decoration, if considered as a work of art, should be done according to the rules of art and beauty; and as the virtue of art consists in producing the greatest effect with the least amount of work, the simpler our floral arrangements are the more pleasing and interesting they will be.

Cut flowers, like plants, should be classified as either characterised by beauty of form or beauty of colour. Those possessing the former should be arranged so as to show individual beauty, not crowded or massed. If any greenery is used it should be of the lightest description, and not in over-abundance. Flowers only distinguished for purity, delicacy, or brilliancy of colours must be massed, and are better without greenery. If any foliage is used it should not in any case tower above the flowers, as by so doing it detracts from their distinguishing qualities.

It is imperative that only one kind of flower be used in the same glass or vase, and in some instances only one colour. Avoid the mixing of different tints or hues of one colour. If contrasts in the same vase are desirable they are almost better to be carried out by the addition of coloured foliage, as Allamandas, with sprays of Cissus discolor. Bougainvillea glabra, with sprigs of Copper Beech or Prunus Pissardi, red Cactus Dahlias and sprays of Acer Negundo variegata. The rich crimson Cactus Dahlia Juarezi, and the silvery foliage of either Centaurea candidissima or Cineraria maritima, Mignonette, and purple Sweet Peas.

The selection of receptacles suitable in shape and form is one of the great points in the proper arranging of flowers, the flowers possessing beauty of form, characterised by dignity, grace, slenderness, and chasteness of outline or substance. In this category may be included almost all bulbous and rhizomatous-rooted plants, and we observe that Nature places them on erect stems, advancing well above the leaves. The receptacles for them should be in proportion to the size of flower or length of stem, whether of glass, enamelled earthenware, or porcelain, the neck being narrow, cylindrical, or bottle-shaped. The trumpet glasses, so often used, are altogether unsuitable, and with heavy flowers are liable to be upset. All Orchids are to be included in the preceding category, besides Pancratiums, Eucharis, Lilliums, Amaryllis, Irises, Freesias, Gladioli, and Clivias.

Almost all herbaceous flowers should be cut with a full length of stem, and be massed in tall earthenware vases, removing all leaves from the stem that will be in the water. Pæonies, Phloxes, Pentstemons, Sunflowers, annual and perennial Delphiniums, are included in the above. Annuals may be massed in trumpet glasses—blue Cornflowers, Corn Marigolds, Shirley Poppies, Clarkias, Sweet Sultan, and Godetias. Sweet Peas are best massed in bowls, with streamers if put on pedestals, and they are very pretty so placed near fireplaces or couches.

Roses, Carnations, double Zonal Pelargoniums, Scabious, and German Asters are very effective massed in separate colours in bowls, low earthenware pots, or two-handled cups. Violets are nice in tumblers. Flat dishes may be arranged with Stephanotis, without foliage, like a dish of wax. The same with single flowers of red and white Lapagerias; also in this way Dipladenias, Ixoras, Rhododendron Princess Royal, Gardenias, Jasmine, Azalea indica, Allamandas, Rondeletia, Cactus Dahlias, with foliage as before mentioned, Plumbago capensis, and Ivy-leaved Pelargoniums Madame Crousse (pink) and Souvenir de Chas. Turner (rose) are telling when arranged in glass sugar basins.

Vases standing high on cabinets, mantelpieces, or pianos should have flowers of a naturally drooping character, as Bougainvillea, Clerodendron Balfouri, Habrothamnus, Deutzia gracilis, Clematis, Begonia insignis or fuchsoides. Flowers with hardwooded stems ought to have a strip of bark peeled off the stem, so as to enable them to suck up the water, which must be kept perfectly fresh by frequent changing. It will be seen that by the above remarks that it is intended that flowers should be arranged according to the true length of their flower stem, and glasses or vases should be proportioned accordingly.—F. STREET.

ELLAM'S DWARF EARLY CABBAGE. — This variety was sent out by Messrs. Veitch about twenty years ago, and is still one of the best early Cabbages grown. From a quarter containing 3000 plants not one has bolted. They are all heart, of exquisite flavour, and as they are grown only 15 inches apart, a few acres of them at this season would be valuable.—GEO. SUMMERS, Sandbeck Park.

SCHOOL GARDENS.

"HERGA'S" note on this subject, at page 435, induces me to say a few words in the same direction. He is, however, wrong in assuming that district councils (rural) have power to provide allotments for the working class. Urban district councils have, but in the rural districts that power is in the hands of the Parish Councils. They have, however, no power to provide ground for school gardens. That can be done in the case of elementary schools only, through the managers, or in the case of County Council groups through the County Councils, or their technical education departments.

It is hardly satisfactory to learn from the Education Department report of the year ending August 31st of last year that only forty-two schools throughout England and Wales took "cottage gardening" as a special subject, and of these only twenty-seven earned a grant, the



FIG. 98.—BAPTISIA EXALTATA.

inference being that the subject was either poorly taught or taught without the aid of school gardens. The total number of boys attending were 475, and of this number 165 earned the lower or 2s. grant only, having attended only twenty hours during the year, whilst 310 obtained the 4s. grant, having attended forty hours. It must not be overlooked, however, that the subject of "cottage gardening" was introduced into the Education Code in 1895 only; hence last year's results were those of the first year's experiment.

Whether "cottage gardening" as a special subject, taught with the aid of school gardens, either under or by a capable school teacher or by some local gardener, will be more widely taken up in the rural districts depends no doubt upon the action of school managers. But in their anxiety to make money through grants there is too much reason to fear that other subjects less practical and useful may be preferred to "cottage gardening"—especially that in this case both ground and tools have to be provided. It sounds strange to hear that even for such important educational purposes it is often difficult to obtain even some 10 or 12 rods of ground in the rural districts, but that such is the case is likely to seriously affect the wide spreading of practising school gardens. Whilst Parish Councils can obtain as best they can allotments for adults, as I have said, they have no power to obtain them for children, but if

any acknowledged allotment holder, after getting possession, chose to allow a portion or all of his plot to be so applied I believe that may be so.

Turning to the work done in the direction of supplying school gardens by County Councils, I believe that Surrey stands foremost. For several years it has promoted the formation of what are called "school," but are really boys' "continuation gardens." Formerly lads either of or away from school were esteemed eligible to have gardens, but since cottage gardening has been made an elementary school subject, boys attending school cannot be holders of continuation garden plots under the C.C. Technical Education Committee. That has led to two or three transferences, but still very few. In the great majority now lads are taught in the gardens who have not only left school, but are of the age of fourteen and upwards. Whilst in Surrey there were last year twenty-six groups of County Council gardens, and a total of 357 boys working them, there were of Education Department groups only three. Three other groups are being added this year. However, the numbers are, compared with those controlled by the County Council, enormously disproportioned. The County Council gives a minimum grant to each garden of 2s. 6d., and a further merit grant of 1s. 6d. or 2s. 6d., as the case may be. Their inspection, which is of the most careful description, is conducted by an able gardening expert, who does know what gardening is, whereas departmental inspectors, as a rule, are of gardening absolutely ignorant.

A notable case occurred in one village in the county of the difficulty of securing even a few rods of ground. A very earnest schoolmaster and an equally enthusiastic gardener were most anxious to establish continuation gardens. They worked hard in securing suitable land, and had the sanction of the Technical Education Committee for their arrangements, but yet, and in spite of the strong desire locally manifested, that the gardens should be provided, yet in the end no ground could be secured, although so trifling a portion was required. Clearly in such matters as this it is evident very drastic powers to secure land for educational purposes should be placed in the hands of local authorities, and failing them, then be vested in the County Council.—A. D.

HARBORNE HALL.

AMONGST the more noteworthy suburban residences situated around Birmingham is that belonging to Walter Chamberlain, Esq. The estate was purchased about sixteen years ago, and has since undergone extensive improvements, and now forms one of the most desirable of domains. The mansion and pleasure grounds occupy a commanding position on the highest portion of the estate, with a full view of the celebrated Clent and Lickey Hills, the broad expanse of intervening valley, and are fully exposed to the south and west winds.

In extending the area of the pleasure grounds a considerable acreage of the estate adjoining the old portion was laid under contribution, and designed mainly by Mr. Chamberlain himself. In the carrying out of this he found an able coadjutor in his present intelligent head gardener, Mr. C. R. Bick, who has the general superintendence of the estate. In altering both the old and new portions, it was determined, partly by way of experiment, to introduce a considerable number of the choicer species of Conifers, planted in masses on the more exposed sites, with the hope of their future establishment, but the acclimatising ordeal eventually proved too drastic for several of the tenderer species. In the general embellishment of the grounds a fine assortment of trees and shrubs was introduced—notably large masses of the choicer Rhododendrons, which at the time of the writer's visit a few days since had begun to effectively unfold their gorgeous inflorescence.

In the re-designing and formation of the grounds and spacious lawn contiguous to the house, the introduction of the usual formal parterre for bedding-out plants was ignored, the object being to preserve as much as possible a lawn-like aspect in the foreground as well as further on down the slope, extending towards the extreme boundary of the grounds. Ample provision, however, was afforded in other positions for the display of herbaceous and annual flowers, for which there is a great demand in the cut state for room decoration. Roses are largely grown in the compact roserie, enclosed by a formal Yew hedge ranging about 5 feet in height, and affording an excellent shelter from the east winds. *Appropos* of the demand for cut flowers, it may here be remarked that the whole of the glass structures are solely devoted to plants for conservatory and room decoration, including the supply of cut flowers. The cultivation of forced fruits is entirely discountenanced, Mrs. Chamberlain's requirements and love of flowers necessitating the utilisation of every foot of glass at command.

The construction of a pool in which various exotic fowls find a home entailed a vast amount of labour and expense, the upper portion of it having been furnished with a rockery by Messrs. Pulham & Son with happy effect. A large assortment of shrubs, Ferns, and waterside plants is there, the whole being established in happy combination amongst the rockery and on the deep steep banks around, whilst a considerable proportion of the pool is canopied over and around by a large group of tall old Elms and other kinds of trees, under which the grass is allowed to grow in semi-wild state, chiefly for the sake of the carpeting of Bluebells and other wild flowers therein. Altogether the *tout ensemble* has proved a gratifying success. Another good example of the formation of an ornamental pond is to be seen within a short distance of the mansion, and considerably differing in character from the foregoing. It also entailed a heavy expense and difficulty in its

formation, lying, as it does, over a substratum of gravel—consequently, had to be efficiently puddled with clay to the depth of 12 inches, and close up to the turf edging of the sloping lawn. In its centre is an islet completely possessed by a mass of *Polygonum cuspidatum* in conjunction with masses of *Typhas angustifolia*, *latifolia*, and *minima* springing up around from the water; whilst other parts of the pond are furnished with a variety of aquatics such as *Nymphæas*, *Aponogeton distachyon*, the pretty Bog-bean (*Menyanthes trifoliata*), *Sagittaria sagittifolia*, *Caltha palustris* (the Marsh Marigold), *Villarsia nymphaeoides*, which, pretty though it be, is apt to make itself too predominant—consequently necessitates frequent checkings. The margin of the pond is richly embellished with waterside plants. The most noticeable are *Cyperus longus*, *Sparganium racemosum*, *Carex pseudo-cyperus*, *Acorus calamus*, *Pontederia cordata*, *Butomus umbellatus*, *Epilobium angustifolium*, *Carex riparia albo-marginata*, *Orchis maculata* and *mascula*, *Petasites vulgaris*, *Gunnera scabra*, *Rheum officinale*, *Spiræa aruncus*, *S. filipendula flore-pleno*, *S. palmatum* and *S. astilboides*; *Eulalia zebrina* in a highly flourishing condition; *Funkias variegata* and *F. ovata* very striking. A large mass of *Arundinaria Metake* growing to a height of from 8 to 10 feet is extremely effective, and evidently enjoys growing in close proximity to the water.

Ferns are represented by such as the Lady Fern (*Athyrium filix-fœmina*), and the Royal Fern. Flourishing also are several plants of *Iris Kämpferi*, and, with very pleasing effect, small plants of *Primula rosea*, whilst an additional charm is lent by the verdure-clothed masses of tufa, more or less in irregular form, projecting into the water, in which gold-coloured carp, disport themselves—good evidence of its purity.

These imperfect notes of this interesting domain would be incomplete without reference to a very fine plant of the charming blue-flowered *Ceanothus Veitchianus* growing against Mr. Bick's house. This plant was in a mass of inflorescence at the period of our visit, and bearing strong evidence of claim to a more extended recognition of its merits and culture elsewhere than has yet been accorded to it, whilst its hardiness admits of no doubt.—G.

MANCHESTER WHITSUN SHOW.

WHEN we came to take our eye over the gorgeous display of Orchids brought together under the roof of the grand exhibition house at the Botanical Gardens, Manchester, we can only express ourselves in the one word, "wonderful!" or agree with Mr. Burberry when he remarked that it was the finest show of Orchids he had ever seen brought together. Mr. T. Statter (Chairman), and Mr. Thompson, Stone, whose love for them is so great, sincerely hoped that the public would appreciate such a treat.

Coming to the exhibits, the glory of the Orchids almost dwarfed everything else. How beautifully one end of the exhibition house was made perfect by the foreground of Orchids, backed up by the grand stove and greenhouse plants from Cypher of Cheltenham. So, too, was the left hand bank by the veteran, Mr. Stevens of Stone. Looking into the annexe what beauty presented itself. The gold medal Cannas from Paul & Son, all so brilliant; the mass of colour made by the hardy cut flowers from Barr & Sons, and Dicksons, Limited, Chester; the soft shades of colour in the Worcester Clematis; the noted Forest Hill Begonias and Caladiums, to the left of which were Cutbush's fine pot Carnations, and to the right the charming miniature rockwork, filled with the most interesting and rare alpine plants from Backhouse of York. A gold medal was bestowed also for this firm's group of Orchids and miscellaneous plants—an interesting show; whilst far beyond in the distance, planted out on mounds, were the notable Rhododendrons from Bagshot.

The highest award (the Society's large gold medal) was taken this year by Charlesworth & Co., Bradford, for a very beautiful collection of Orchids. A first-class certificate was awarded for one of the firm's introductions, staged by them for Mrs. Briggs Bury, Bank House, Accrington, and named *Lælio-Cattleya "Iolanthe"* with deep purple lip, from *Cattleya Mossiæ grandis* crossed with *Lælia purpurata*. Also lovely were *Lælio-Cattleya Lady Wigan*, from *Lælia purpurata* *Russelliana* crossed with *C. Mossiæ aurea*; *Cypripedium Laysenianum*, a cross between *bellatulum* and *barbatum* Crossi, which received an award of merit; *Lælia purpurata* *Backhousiana*, *Cypripedium Goweri* *magnifica* (grand form), *Cypripedium Morganæ*, and *Oncidium macranthum*.

Messrs. F. Sander & Co., St. Albans, secured a gold medal for a charming collection of Orchids and new and rare plants, splendidly staged. The gem of the show was undoubtedly the grand *Lælio-Cattleya* *Queen Empress*, from *Cattleya Mendeli Victoria* crossed with *Lælia purpurata* *Empress*. It is a veritable gem, with pure white sepals and petals, orange throat, and an intense crimson-purple lip. It was marked "sold." A F.C.C. was granted to *Sobralia Veitchi*, with rose sepals and petals, lip of deeper rose, and orange throat; also for *Davallia hirta*, a deep-coloured strong-growing species, likely to come to the fore. In all this firm secured six A.M. and a botanical certificate. Messrs. W. L. Lewis & Co. always count for something, and they were even better represented than on any previous occasion. They were worthily granted a F.C.C. for *Cattleya Hardyana* *Lewisi*, a flower with an immense coloured lip. The *Cattleya Mossiæ* were very fine throughout, and the other attractions were *Cypripedium Aylingi*, *Gertrude Hollington* and *Stonei*.

Mr. James Cypher, Cheltenham, secured A.M. for *Lælias purpurata* Meteor, Schofieldiana, and Duchess; also for *Cattleya Mossiæ striata* (very pretty). Mr. A. J. Keeling, a new comer from Bradford, made his *débüt* with a choice little collection, containing much variety.

Amongst amateur growers the chaste and beautiful *Cattleya Mossiæ* var. "M. Cahurza," was probably an attraction to all, as it richly deserved to be. In it, A. Warburton, Esq., Vine House, Haslingden, has a treasure. The form is perfect. It is most floriferous, having snow-white sepals and petals, with a lip partaking after the var. *Reineckiana*. It secured a F.C.C. Mr. Warburton had an award of merit granted for *Cattleya Mossiæ*, "Jubilee," having an exceptionally fine lip. D. B. Rappart, Esq., Liscard, as on the previous day at the Orchid Society, secured a F.C.C. for *Cattleya Mossiæ* in the way of C. *Reineckiana*, but very much finer, the Committee unanimously naming it *Catt. Mossiæ Rappartiana*, a chaste variety with white sepals and petals of rare substance and pale lip, dashed with bluish slate.

For the best miscellaneous collection of Orchids in bloom (amateurs) Mr. W. Stevens, gardener to W. Thompson, Esq., Walton Grange, Stone, arranged a charming display, the grand *Odontoglossum* for which Mr. Thompson is so noted being splendidly represented. E. Ashworth, Esq., came a prominent second, handsome *Lælias* and *Cattleyas* showing to great advantage. J. Richardson, Esq., Altrincham, was third. In the nurserymen's class Mr. James Cypher, Cheltenham, arranged his group with consummate taste, securing the first award. Most noticeable were *Lælia purpurata* in variety, fine *Odontoglossum crispum*, and the lovely *Thunia Marshalli superba*. Mr. Jno. Robson, Bowdon, had for second honours a choice display, comprising *Cattleyas* and *Dendrobiums* well grown and of much merit, also *Lælia tenebrosa*; but the whole group was much dwarfed by a too formal arrangement.

For the best collection of *Cattleyas* and *Lælias* in bloom Mr. Johnson, gardener to Thos. Statter, Esq., Stand Hall, Manchester, had a handsome stand relieved by Maidenhair Fern. *Lælia purpurata splendens*, *L. purpurata Statteriana* and *tenebrosa*, *Cattleyas Mossiæ Mendeli* and the beautiful C. *Mossiæ Reineckiana* were fine. Mr. James Cypher was a moderate second, *Cattleya Mossiæ* being good.

Mr. Cypher was the only exhibitor for ten stove and greenhouse plants, but as usual they bore the imprint of good and thorough culture. *Pimelea Hendersoni*, *Erica ventricosa magnifica*, *Spenceriana* and *depressa*, *Clerodendron Balfourianum*, *Aphelxis macrantha rosea*, *Hedera tulipifera*, and *Anthurium Scherzerianum* were shown. In the amateur classes Mr. Wilkes, gardener to Miss Lord, Ashton-on-Mersey, won with six stove and greenhouse plants, one foliage plant, one stove plant in bloom, with well-grown *Dendrobium densiflorum*, also for six fine-foliaged plants; but the collection was not up to the average for this season of the year.

There were three groups of plants arranged, Mr. Wilkes, with his usual good taste, winning with a light and elegant arrangement. Mrs. Blair was a good second. In the nurserymen's section Mr. A. J. A. Bruce, Chorlton-cum-Hardy, was adjudged the winner, the Bamboos giving great effect, otherwise the group was not up to former years. Messrs. R. P. Ker & Sons, Aigburth Nursery, were placed second.

Cinerarias were fairly well exhibited, Mr. Wilkes winning. *Calceolarias* and *Gloxinias* were moderate, E. Thwaites, Esq., and B. Woodrow, Esq., being the successful exhibitors. For a collection of twelve herbaceous and alpine plants J. Brown, Esq., Longfield, had a fair exhibit. The same exhibitor won with six pretty pot Roses, also for twelve pots of Pansies. A small but healthy collection of ten exotic Ferns secured the prize for Mrs. Blair. Messrs. W. & J. Birkenhead exhibited ten hardy Ferns fresh and in beautiful variety. *Coleus*, *Tuberous Begonias*, *Pelargoniums*, *Zonal* and *Show*, were really so moderate as to call for no comment, a fact to be much regretted.

Mr. Wilkes again showed much ability by his arrangement of a table of plants for effect. For not less than fifty Carnations in pots Messrs. W. Cutbush & Sons secured the gold medal. *Malmaisons* were numerous represented, some fine new ones bearing the names of Princess May, Prime Minister, Mrs. Everard Hambro, Reginald Godfrey, and Ness being much admired. Messrs. Jno. Laing & Sons secured the small gold medal for *Begonias*, F.C.C. being awarded to Hon. Cecil Rhodes, an intense double scarlet; Lady Pearson, a huge double salmon; and Admiral Rawson, a giant single orange scarlet. The same firm had a choice bank of *Caladiums*, so well known as to make comment superfluous. A gold medal also went to Messrs. Paul & Son, Old Nurseries, Cheshunt, for a charming bank of pot Roses, *Crimson Rambler* and *Caroline Pillar* playing a prominent part. Manchester people were again delighted to see the charming *Clematis* from Messrs. Smith & Co., Worcester, a small gold medal being unanimously awarded. The splendid *Rhododendrons* from Messrs. Waterer & Son of Bagshot were quite gorgeous, filling three parts of the long annexe. The Society's large gold medal was never more deservedly awarded.

Messrs. Barr & Sons had excellent selections of *Irises*, *Pyrethrums*, *Papavers*, and numerous herbaceous cut flowers (silver medal). The same award went to Dicksons, Ltd., Chester, for a truly handsome display on similar lines to the above, the arrangement being noted for good taste.

GUELDRES ROSES AND CATS.—Has it ever been noticed by gardeners how fond cats are of the smell of the wood and bark of the Gueldres Rose? I have three cats, and they all frequent almost daily two trees in my garden. They smell the bark, bite it, rub themselves over it, and scratch it for some minutes at a time. They do not behave in the same manner to any other tree in the garden.—J. B. C.

THE YOUNG GARDENERS' DOMAIN.

FORCING FRENCH BEANS.

I HAVE never found Beans to emit roots from the stems after they have been top-dressed, but I find they root into the fresh soil just as well as if they were potted. For in potting one must pot them deeply or leave a lanky stem protruding out of the pot, which I prefer not to do. But as to the earliness in bearing, I give preference to my top-dressed ones, although not a fortnight.—SINGLE W.

PACKING.

(Continued from page 490.)

HAVING referred (page 489) to the packing of Grapes, Peaches, and Strawberries, other kinds must not be overlooked.

PINE APPLES.—These need great care in packing; their crowns must be preserved intact. The fruit have tissue paper placed round them, and are then laid on their sides in a box on a bed of wood wool. The spaces between the fruit and the crowns are also well filled with the same material. Another way is to have a box so deep that the fruits may stand upright and the crowns be free, but if they are packed in this way they must have plenty of wood wool between them to hold them securely in position, and the lid of the box labelled, "This side up, with care."

FIGS.—These require to be packed in a single layer. The boxes are about 2½ inches deep, and lined with paper. The fruits are wrapped separately in soft Vine leaves, and laid as closely as possible together. More leaves are then used for covering the fruit.

Raspberries are packed the same as Strawberries, but for dessert and preserving, Cherries, Currants, and Gooseberries for dessert are placed in boxes about 4 inches deep, lined with Vine leaves. Plums for dessert are placed close together in shallow boxes, one layer in each, Vine leaves being used for the bottom and the top of the boxes. Apricots are packed in the same way as Peaches and Nectarines. Cape Gooseberries are placed in boxes with the husks on the fruits, nothing else being necessary if the box is well filled.

Pears and Apples for dessert are placed in shallow boxes deep enough to hold one layer, the boxes lined with paper, and the fruits packed as closely as possible. They may also be packed in boxes or hampers holding several layers. No fruit of any kind should be packed in an over-ripe state.

CUT FLOWERS.—These, like fruit, require to be packed closely to prevent displacement by shaking. For sending small quantities by post boxes made for the purpose may be obtained from nurserymen or cardboard box manufacturers. A layer of cotton wool, previously damped, is put in the box, and covered with tissue paper, the flowers then laid in, and the remaining space filled with Fern or any green foliage that is light. When sending mixed flowers away in large quantities wooden boxes are used, placing the heavy flowers at the bottom, and the lighter ones on the top, covering with the green foliage that is required to assist the flowers for decoration. Flowers which are easily bruised, such as *Gardenias*, *Camellias*, and *Malmaison Carnations*, are packed in single layers in shallow boxes.

PLANTS.—The shallow hampers, which are familiar to every gardener, are the best for packing plants in. Some plants require greater care than others, especially Orchids. If these are in bloom a piece of tissue paper is tied round each flower to prevent bruising, and the stalk fastened to a small stake. Stakes taller than the plant are then forced in the pot, and paper wrapped round so as to enclose both pot and plant. Palms and other hardier plants only require one stake, and the leaves tied to it, covering only the foliage with paper. When packing in the hampers the bottom is well covered with hay or straw. The tallest plants are placed in the centre, and the spaces between the pot filled with the same material. Strong cord is then strung across the hamper, so as to keep the plants in their places. Large stakes made of Willow, Hazel, or Ash are then stuck in the hamper at equal distance apart, and the ends drawn and fastened together at the top; mats placed round and secured, so as to prevent cold draughts reaching to the plants, completes the operation.—ELVEDEN.

TOMATO CULTURE.

(Continued from page 490.)

CONTINUING my remarks on page 490 it is necessary to refer to the diseases and insects to which Tomatoes are liable, also to the selection of varieties for home use and exhibition purposes.

DISEASES.—Most of the diseases of the Tomato may be traced to want of heat or neglected ventilation. *Cladysporium fulvum* is one of the worst affections, first showing with a few black blotches on the under side of the leaves. Careful ventilation and fire heat for keeping a circulation of dry air in the house, watering the plants in the morning when it is required, and cutting of all affected leaves, are the surest remedies and good means of prevention. *Phytophthora infestans*, the Potato disease, is seldom seen, and is more deadly, few plants growing out of it, as it attacks the stem. Throw out the plants affected, plant others, and treat as above described. *Cladysporium lycopersici* is a disease which has given us some trouble. The black spot of decay nearly always starts from the centre of the fruit where it has flowered, and spreads rapidly over the surface. A dry buoyant atmosphere is the only remedy I know, as damp is the chief cause of decay setting in.

Of insect pests the most annoying is the white fly, *Aleyrodes vaporariorum*. There are few gardens where Tomatoes are grown all the year round that escape its visitation. We find Murray's Electric vapouriser a sure exterminator. It does not injure the tenderest flower,

and is also good against red spider if it appears. Some mix sulphur and water and syringe the leaves with it. We have never been troubled with wireworm, though often using fresh loam, nor have the roots been galled from eelworm attacks.

VARIETIES.—Among the best Tomatoes are the different selections of Perfection. Having grown Suttons' Perfection, Duke of York, and Cannell's King, the first named proved a little the largest, the second the deepest in colour. Frogmore Selected is a heavy cropper of medium sized fruit, slightly ribbed. A.I. is an ideal Tomato for market—short jointed, free setting, and carrying a heavy crop of smooth medium-sized fruit. Some people complain of it, being so liable to crack. With careful selection I have obtained a variety free from cracking, and larger than the original A.I. It is useful, as in the Dublin market Tomatoes weighing half a pound bring a higher price than those only half the weight. Hathaway's Excelsior is also good, being a heavy cropper of medium size. Conference is too small with us, but an immense cropper. All the foregoing are red.

The only yellow variety grown was raised from seed saved from Frogmore Selected crossed with Perfection. The object was to raise a variety with the free-cropping qualities of Frogmore, with the size and shape of Perfection. The size is large, flavour and shape good, the colour being a rich orange yellow. It took first prizes last year at shows for a dish of yellow Tomatoes. Is it usual for yellow varieties to be raised from red?

EXHIBITION.—For exhibition there is nothing in the reds to excel the numerous selections of Perfection sent out under so many different names. Do not leave more than three fruits on a truss, cutting off all badly shaped fruits and those showing ribs. All other treatment is the same as that for general crop. If ripe too soon for a show Tomatoes will keep ten or twelve days in a dry cool room, either lying on wood wool or cut with a stalk and put in a bottle filled with water, the fruit sitting on the mouth of the bottle. It is useless trying to keep cracked fruit, as decay rapidly sets in. Do I leave too much space between the lines? Are there many grammatical errors?—W. T., Ireland.

[The spacing is quite right; grammatical errors few. If a copy is kept of articles sent the extent of revision may be perceived. It is excellent practice.]

PROPAGATION OF EUPHORBIA JACQUINIÆFLORA.

As the increase of this beautiful plant often proves difficult to the inexperienced propagator, perhaps the following remarks will not be considered superfluous. My method is simple. Tear off the young shoots from the old plants and throw them down on the Pine bed or on any shady place in the house till they stop bleeding. Sometimes I leave them twelve or twenty hours like this; then they are inserted in 4-inch pots, a sandy compost preferred, and plunged in the Pine bed under a bell-glass. In about three weeks they are well rooted and ready to be placed in 3-inch pots. A few weeks later they may be put in their final pots (I prefer a 5-inch), and the strongest plants will reach a height of 5 or 6 feet in the course of the season, producing a 9-inch wreath. At least 95 per cent. of the cuttings treated as above grow and succeed with me. Some of the last year's plants seeded, and I sowed from them on the 11th of May. To-day (the 22nd of the same month) plants are just springing through the soil, and I expect them to do as well as the cuttings; but I have never had seedlings to grow, and so cannot speak from experience on that point, but hope to do so in due time.—R. A. ANDERSON, Alnwick Castle Gardens.



FRUIT FORCING.

Figs.—*Early Forced Trees.*—After the first crops are gathered generous treatment should be accorded, so as to enable the trees to swell the second. Trees in pots require water daily, sometimes twice a day, and some nourishing food should be applied, so as to keep them in healthful vigour. Stable and cowhouse drainings must be carefully used, as they may contain little beyond urine, and require to be diluted with about six times the bulk of water. The contents of manure tanks are still more variable in strength. Sometimes the liquid is merely coloured with manurial matter, and at others it is as dark as porter. The thing is not to apply it too strong. Where these stimulants cannot be had it is a good plan to use surface dressings of fresh turf, and sprinkle some approved fertiliser over that occasionally. Planted-out trees will require water or liquid manure once or twice a week, according to the extent of the rooting area, and the roots should be mulched with rich material so as to keep an abundance of active feeders. Syringe the trees twice a day to keep red spider in check, directing the force of the water against the under side of the leaves, and letting the applications be thorough, as one good syringing is worth many sprinklings. Thin the fruit before it is the size of Walnuts, and in thinning reserve the largest fruit at the base of the shoots. Trees that are to be forced early another year should not be allowed to carry a heavy second crop, and none near the points of the shoots, or they will not be able to produce

a full first crop of Figs another season, which is of the greatest consequence.

Succession Houses.—Trees started during the first two months of the year have the fruit ripened and require a free circulation of air, warm and rather dry. Leave a little ventilation on constantly so as to prevent moisture condensing on the fruit, and increase it early to dispel any that would otherwise become deposited on the fruit through the sun heating the air more rapidly than the fruit, the cooler surface of the latter condensing the moisture in the atmosphere expanded by the sun's warmth. Take care not to wet the fruit after it commences to ripen, and afford all the light practicable. Tie in and regulate the growths by stopping and thinning, keeping them fairly thin, and not pinching where there is room, as the finest fruits are borne on extensions, especially in the first crop, spurred shoots giving good results in second crops. Do not allow any lack of water at the roots, yet give less supplies than when the fruits are swelling. If red spider attack the trees the fruit should be closely gathered and a good syringing given, which will not injure the remaining fruit, provided it is done on a fine day, so that the moisture does not remain long on the fruit.

Young Trees in Pots for Next Year's Early Forcing.—The growths of these must not be stopped much after this date, but have all the light practicable, and be kept as near the glass as possible without touching it, so as to secure sturdy, well-ripened growth, keeping this clean by syringing and the application of an approved insecticide when necessary. Afford liquid manure to insure stout, well-nourished growth. When the growth is completed, the trees may be stood outside to induce rest, but the wood must be well ripened previously, and to be of use for early forcing, it must be matured early, and never have its assimilated juices extracted by red spider or scale.

Pines.—*Potting Suckers.*—The early fruited plants as they finish will afford suckers, which should be taken in sufficient quantity to meet the demand, and be started at once. These will afford plants for fruiting about this time next year, and form a supplementary batch to those started in the spring. They require a close, rather moist pit, and a bottom heat of 85° to 90°. Pay careful attention to shading, and damp as required.

Spring-potted Suckers.—If the strongest of those potted last March are not in their fruiting pots they must not longer be kept in the small ones, as that stunts their growth and weakens them, so that they do not do well afterwards. When given their fruiting pots the plants should have a regular bottom heat of 85° to 95°, and be thoroughly well watered after potting, not giving more until the soil becomes dry, always avoiding a too wet soil, as that is not favourable to the formation of roots.

Young Stock.—The succession plants are now making rapid progress, and must not be crowded, or that will result in attenuated growth and poor shows of fruit. Afford them ample space, so as to secure a sturdy growth. Have the foliage dry before it is affected by the sun, ventilating early in the day at 75° to 80°. Watering should be attended to once a week, not giving any until it is found by examination to be needed, and then afford a thorough supply of tepid liquid manure, being careful not to apply it too strong. Syringe the plants on fine afternoons, and otherwise maintain a genial condition of the atmosphere by damping the house; but avoid a very moist atmosphere in dull weather, as it only tends to a soft growth, and that is seldom satisfactory when the weather becomes bright, often rendering shade imperative to prevent scorching. While water remains in the axils of the leaves syringing is not required, and in watering pour the water well up the plants, as they have roots in the axils of the leaves at the base, which assist their growth and make them sturdy.

Plants for Winter Fruiting.—If the strongest of the plants placed in their fruiting pots last September are not showing fruit means must be taken to effect it. Bring them together, and subject them to a resting process for a period of four to six weeks, lowering the heat at the roots to 75°, ventilating at that temperature and closing at the same, maintaining a free circulation of air about the plants in favourable weather, only employing artificial heat to prevent the temperature falling below 60° at night. Water should not be withheld; but do not give any until a plant becomes dry, and then afford a liberal supply. When the small suckers of last autumn that were wintered in 7 or 8-inch pots and shifted this spring into the fruiting pots have filled the pots with roots, they may be subjected to the same treatment as advised for the larger plants, and these will afford a successional supply of fruit.

Fruiting Plants.—Those with the crowns in close proximity to the glass will require a slight shade from powerful sun, otherwise they may become disfigured, and the fruit also is prejudiced by exposure to fierce sun. Cease syringing when the fruits commence to colour, supplying water to the roots as necessary, but avoid excessive supplies, as a wet state of the soil is apt to cause the fruit to become black in the centre. Ventilation improves the quality of the fruit, therefore admit air whenever circumstances permit, not allowing the temperature to fall below 80° in the daytime, and maintain it at 70° to 75° at night. Queen and Providence Pines started into fruit early in February will ripen this month, they coming in three weeks to a month in advance of Smooth-leaved Cayenne, Charlotte Rothschild, and similar varieties started at the same time, and under similar conditions. They afford a good successional supply, which may be still further extended by removing some of the plants with the fruit to a cooler house. These fruits are much superior in freshness and using qualities to imported, the noble specimens that are the outcome of superior cultivation completely eclipsing those produced abroad. Indeed, we are of the few in believing that even this

fruit is nowhere grown so well as in Britain, and in it could be grown to pay on the most approved and economical method of cultivation. The Providence Pine has a fine effect in table decorations, and though not equal to a Queen in quality, should be grown in limited number for its superior size and showy appearance. Enville also may be mentioned as one of the most shapely and easiest grown of Pine Apples, coming in at height of London season.

THE FLOWER GARDEN.

Subtropical Plants.—Most flower beds and borders will be filled ere this, but the efforts at beautifying a place ought not always to be confined to these details. Instead of keeping the houses crowded with plants which very few people care to see during the summer months, some of them should be transferred to sheltered nooks. Many an interesting corner might thus be rendered attractive. Strong plants of Musas, large specimens of Latanias, Chamaerops, Scaevolarias, and other comparatively hardy Palms, tall Cordylines or greenhouse Dracenas, Acacias, Cyperuses, Ficus elastica, Arundo donax, and the variegated form of Caladium esculentum, Yuccas, Aloes, and such like are all more or less well adapted for this purpose. Shade is not indispensable, but many of the plants like a moderate amount of it, and these may thus be grouped where flowering plants would fail. Planting out is not recommended, the better plan being to plunge the pots to the rim. Extra good plants are most effective quite by themselves plunged in the turf in some sheltered nook, the others being very thinly grouped in somewhat similar positions. The tallest of the Cordylines and Musas would be best disposed in shrubberies where they could be seen with only the upper part of their stems exposed. Most of them, if kept properly supplied with water, could be returned to the houses in the autumn before severe frosts damage them, and would then be available for the next season.

Greenhouse Flowering Plants.—Some of these might also be utilised for the adornment of pleasure grounds. Fuchsias invariably thrive well in the open, oftentimes after they have refused to do so under glass. If it is desired to save the plants for another year plunge the pots to the rims in the turf. Standards are very effective as "dot plants" in beds of Begonias, while these, pyramids and bushes, may also be placed in groups on the lawn by plunging the pots. If kept well supplied with water and liquid manure they will flower grandly till the autumn. Cannas are very effective in masses, and continue flowering throughout the summer. These may either be plunged or planted out. Erythrina crista galli attracts far more attention outside than it does under glass. A mass is very effective either planted out in a bed or plunged in the turf. Hedychium Gardnerianum again grows very sturdily, and flowers grandly in the open; and if plunged in pots can be moved when getting shabby, and some other plants take its place. Pyramids of Ivy-leaf Pelargoniums treated similarly to Fuchsias are very effective, and the same may be said of trained Pelargoniums generally, and also Heliotropes. Large Celosias or feathered Cockscombs plunged in the turf in July are very showy, and even the ordinary Cockscombs, turned out after they are nearly or quite fully grown, last for a long time.

Mulching Flower Beds.—During hot and dry weather there is every inducement for the watering pot and hose to be freely used, and this not always to the advantage of the plants. Very often a light watering applied in the evening is all that is needed, the soil though dry on the surface being quite moist enough underneath. Constantly drenching the ground with cold water greatly impoverishes it, and many plants do not thrive well under such conditions. A light surfacing of common salt, stirred in with a small Dutch hoe or a pointed stick, would make many soils more retentive of moisture, also proving a good manure when washed down to the roots, and ought to be tried. In most cases a mulching of either old Mushroom bed refuse, leaf soil, well decayed tanner's bark, fine peat, cocoa-nut fibre refuse, or even fine dry soil, would conserve the moisture in the beds and obviate the necessity for watering so frequently. Especially ought Tuberous Begonias, Verbenas, Fuchsias, Violas, and Calceolarias to receive this attention. First give the beds a good watering, unless fortunately a soaking rain falls opportunely, and the next morning lightly stir and level over the surface with a flat hoe, and then apply the mulch, the whole of the bed being covered with a moderate thickness of it. This mulching may not wholly do away with the necessity for watering, and should the weather continue dry and hot the soil ought to be probed occasionally, and water given when needed.

THE KITCHEN GARDEN.

Preparing Celery Trenches.—Planting in double lines in trenches 18 to 20 inches wide is a doubtful advance upon the older practice of arranging in single lines. If large "sticks" are not required the plants may be put out 6 inches to 8 inches apart, and a single trench be made to hold nearly as many as can comfortably be got into double rows. For these the trenches may be from 12 inches to 15 inches wide, and 4 feet apart from centre to centre. In the case of cold clayey soils deep trenches are a mistake. Where the position is hot and dry, a gravelly or sandy subsoil prevailing, the trenches may be made deeper, and if the Celery is addicted to bolting much earlier than is common elsewhere, owing to a deficiency of moisture at the roots after moulding up has commenced, lay a loose drainage pipe down along the bottom of the trench, with a stand-pipe at the upper or highest end connected with it. By means of this drain, water or liquid manure can be poured

down the stand-pipe and distributed along the trench simply and effectively.

Celery Beds.—Very superior early, as well as midseason and late Celery, is sometimes grown in beds raised by the addition of manure, fresh loam, and burnt refuse above the ordinary garden level. In this instance the blanching is effected by means of bandages of brown paper in sufficient quantities to exclude the light, a strip of canvas preserving the paper late in the season. The advantages of these beds are a warm root run, facilities for watering and feeding as long as need be, and immunity from slug and grub attacks.

Planting Celery.—Celery plants move best when they are not more than 6 inches high. When much taller they are bound to flag badly in either dull or bright weather, whereas sturdy plants scarcely show any signs of trouble. The plants ought always to have a good soaking of water an hour or two before moving them, and each should be cut out with a square of soil and roots, and be cleared of weeds, suckers, and small leaves. Replant firmly, follow with a good watering, and during dry, hot weather keep well supplied with water.

Celeriac.—When the early Cauliflower is cut the plants may be cleared off, the ground hoed and freed of weeds, and Celeriac be planted without any further preparation. It is not a strong leafy growth that is wanted, but rather the formation of a stout Turnip-like base, and that is why moderately rich yet firm ground is recommended. The plants ought to have been prepared in beds, ready for moving, similarly to ordinary Celery, and should be transplanted equally carefully. Dispose them quite on the level, 15 inches apart each way, well fix them in the ground, give water at the time, and occasionally during dry weather, till all are well established.

Lettuce.—Seeds of favourite varieties ought to be sown every fortnight during June and July, where the plants are to heart. The square-topped ridges between Celery trenches suit Lettuce admirably, and should be utilised for this important crop. One central row is enough for the spaces between early Celery, but two rows may be grown between the late crops. Make the soil fine to a good depth, open shallow drills, and if the soil is in the least dry water it well prior to sowing the seeds.

Beet.—Where thinning is necessary this should not long be delayed. Leaving the plants moderately close together, or 6 inches to 8 inches apart, is a preventive of coarseness; but if the fault lies in the direction of the roots being too small, leave them 9 inches apart, stirring between the rows with a Dutch hoe about once in a fortnight keeps down the weeds, prevents the ground from cracking, and conserves moisture.

Carrots.—Before the rains came the plants presented a very patchy appearance, but in all probability much seed has germinated since. This may not be to the disadvantage of the grower, as it not unfrequently happens that late sown Carrots form more desirable, if smaller, roots than those raised earlier. In any case it will soon be time to sow more seed, preferably of the stump-rooted or Horn section, with a view to having an autumn supply of tender and sweet roots to supplement late Peas. The drills may be drawn 9 inches apart, and if the soil is dry at the time be watered prior to sowing. Late Carrots are much liable to be grub eaten. Sow wood ashes lightly with the seed as a preventive. Thin main crop Carrots to a distance of 6 inches apart, allowing more space if large roots are desired. The final thinning may be done gradually, or according as young roots are required for use.

Onions.—The earlier these can be thinned out in reason the better. They draw the most readily when not more than 4 inches high. If the rows are from 10 inches to 12 inches apart thin out the plants to a distance of 4 inches apart, if large bulbs are required. The most serviceable crops are often never thinned. Dust soot freely among the plants, and do not neglect an opportunity for surface hoeing. Onions may be transplanted in showery weather.

Parsnips.—If Parsnips are transplanted let it be for the sake of appearance. There should be no undue delay in thinning out the plants where thick, eventually leaving them from 9 inches to 1 foot apart, medium sized to comparatively small roots being of more value than the coarser ones.

SWEET PEAS.—Very early and of free growth, coming into bloom profusely, were Sweet Peas at Woodhatch, the seeds being sown in long troughs several inches wide and deep. This is done early, under glass, and when the plants are stood outdoors in warm places, the boxes are well earthed-over to encourage rooting outside. Not only are the plants staked, but they are in bud. When I saw them recently outdoors they were blooming profusely, thus furnishing early a large supply of the favoured sweet perfumed flowers. Of course it is needful to give the plants an ample supply of water, and some liquid manure. It is surprising so treated how long they continue to flower. No doubt the roots find their way out of the boxes into the moulded-up soil and manure mulching. A few days after being at Reigate I saw a grand row, the plants then being fully 4 feet in height, and also flowering profusely at Gunnersbury House. Mr. Hudson sows in 8-inch pots in November, keeps the plants in a cool frame all the winter, then turns them out in a warm part of the garden into a long row, and about 15 inches apart, in the spring. Again, in this way not only wonderfully fine but very early flowers are obtained. Whilst at Woodhatch the varieties are mixed, at Gunnersbury there are but six planted in blocks of about a dozen pots each. They consist of Blanche Burpee, the finest white; Venus, soft flesh; Her Majesty, Countess of Rainor, Lady Penzance, and Firefly; really a beautiful selection. A late sowing for succession was just well up.—A. D.

THE BEE-KEEPER.

SEASONABLE NOTES.

BEE-KEEPERS whether on a large or small scale must now decide in what form they will obtain a surplus, as in districts where the bulk of the honey is obtained from field Beans, White Clover, and the Limes, the next six weeks will decide the question whether the present season will be a good one for honey production.

Prospects are decidedly good. Since my last notes the much needed rain has come; the temperature, too, being higher is all in favour of the plants making a rapid growth. Already the parched up sheep pastures, which are composed chiefly of White Clover, are progressing favourably, and will be in full bloom by the last week in June. Beans, of which there is a limited quantity grown in the district, although short on the stem, owing to the cold winds experienced this spring, are just opening their flowers. The honey obtained from field Beans is of good flavour, with a pleasant aroma, but is rather dark in colour. Bees work freely on them, and if there is a field of Beans within two miles of the apiary will disregard all other flowers in favour of them.

It is interesting to observe the ingenuity of bees in their endeavours to obtain the nectar secreted in the flowers of Beans. The tube being too long for the proboscis of the bee to reach it from the entrance, they bore a hole at the base of each bloom, and so obtain the much-coveted nectar. The humble bee is often supposed to first bore the hole, and the worker bee follows and obtains the honey, but after carefully observing the hive bees at work I am convinced they are capable of doing the whole of the work themselves.

WORKING FOR EXTRACTED HONEY.

What system is best for obtaining a large quantity of run honey of the first quality? Some bee-keepers advocate large hives with extra-sized brood chambers. Others use hives of less size, and when the queen requires more room for ovipositing some frames of brood are removed and placed over the brood nest in a top storey, the empty space being filled with frames of fully drawn out combs or foundation. This is termed the doubling system. Good results are obtained from both, but for reasons previously given I prefer the latter.

It is, however, immaterial so long as the hive is crowded and ample super room is provided for the bees to store a surplus, which should always be directly over the brood nest. If a stock has fifteen or more frames of brood in the body of the hive the same system of doubling may be carried out with advantage. By restricting the brood nest during the honey flow to ten frames, and the whole of the top storey filled with frames of brood and empty frames of fully drawn out combs, at least a fortnight before honey is coming in freely, will result in a larger surplus of run honey than can be obtained by any other means.

Colonies that have not the required number of bees may be assisted with frames of brood and adhering bees from weak stocks, for preference from those having aged queens. This should be done in the middle of a fine day, when bees are freely on the wing. It is not necessary to sprinkle them with flour, syrup, or anything else at this season, for if the frames are placed alternately with those in the hive to which they are to be united, the majority of them being young bees, no fighting will take place, and the bee-keeper will have the satisfaction of having a given number of stocks in his apiary in prime condition for obtaining full benefit from whatever flowers there may be in bloom.

Queen-excluder zinc must always be used when full-sized frames are employed as supers, otherwise the queen will not remain in the body of the hive, but will fill the frames intended for extracting purposes with brood. Shallow frames may also be used for extracting; by using them the brood nest is not interfered with. They are useful on a small scale; but after experimenting with them for several years, I have not been able to obtain as large a surplus as from the above-mentioned plan.

PREVENTION OF SWARMING.

Under the modern system of bee-keeping it is an advantage to keep the bees at work, storing honey when it is possible, instead of wasting their energies on swarming. When the majority of bees were kept in straw skeps it became a necessity for the bee-keeper to allow his bees to swarm, otherwise there would be no young queens raised, and there would be a difficulty in removing the combs, the bees being driven or, as was more often the case, destroyed. Now all this is altered, and the aim of the majority of bee-keepers is to obtain as much honey as possible without their bees being troubled with the swarming mania.

To prevent swarming it is necessary to give the bees room at the right time. It is useless doing so when queen cells are formed. If the queen cells are all removed others will at once be formed, and the bees will probably come off the first fine day. Ample space, rather in advance of their requirements, should be provided, plenty of ventilation, and shade from bright sunshine. If supers are used place a crate of empty sections under the previous one placed on the hive when it is about three parts full. The empty supers should always be placed underneath and not on the top of those partly filled. By working on the above lines very little swarming will take place, and should the weather be favourable will result in a bountiful harvest of honey instead of swarms.

COMB HONEY.

The most handy form in which to obtain comb honey is by using the 1-lb. sections, and the most useful sized crate is one holding twenty-one sections. Place them on a strong colony and cover them up warm. When the sections are about three parts filled, and the more forward sections in the middle of crate are partly sealed over, lift it off the hive, and put another crate of empty sections in its place. The crate of partly filled sections should now be placed on the top, care being taken that they fit closely. If the weather is favourable the bees will at once commence to store a surplus in the empty sections, and as the honey becomes ripened in the top sections will seal it over. When honey is coming in freely it is sometimes necessary to have three crates of twenty-one sections on a strong colony at one time. It is not necessary to use excluder zinc when sections are used.—AN ENGLISH BEE-KEEPER.



All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," 8, Rose Hill Road, Wandsworth, London, S.W. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

Laburnums (F. B.).—Your specimens represent another example of the result of grafting, about which see reply to "H. C." on page 468 of our issue of May 27th, 1897.

Odontoglossum nebulosum (J. B.).—Though your flower had shrunk somewhat in travelling, it was not too far gone for its quality to be readily seen. The sepals, petals, and lip are all of very fine form, while the chocolate markings are much better than in many forms we have seen.

Temple Show Awards (C. Beckett).—So much had to be done in such little time that we were almost surprised by the R.H.S. officials supplying us with so many awards in time for publication on the night of the first day of the show. We are glad that a silver cup was granted for your exhibit, which it thoroughly well deserved.

Tomato Flowers Dropping (W. B.).—The sample was very small indeed, and considerably shrivelled by drying in the box. There did not appear to be otherwise anything the matter with the flowers. There may have been too much moisture in the atmosphere to have prevented the setting. So far as we could perceive there does not seem anything to be alarmed about. We can only suggest more liberal ventilation, leaving a little air on constantly, and enlarging the openings, before the sun acts powerfully upon the house. This should be accompanied by corresponding dryness both at the roots and in the atmosphere; then the flowers would no doubt set freely, and especially if carefully fertilised in the middle of the day. There is no harm in dusting with the anti-fungoid powder, as it will prevent attacks of fungi, and to some extent lessen the liability to damp. More air appears to be the chief want, and it ought to be secured even if artificial heat has to be resorted to.

Judging Gardens (Novice).—As you say you have never occupied the position of a judge, we think it would be very unwise to undertake the duty of adjudicating on the gardens alone. You ought not to be expected to do so, but might very well act with an experienced colleague. It is a serious thing undertaking such a duty on the part of any person who feels he does not possess the requisite qualifications, and the venture, for a venture it would be, might result in injustice to competitors, and prove damaging to the adjudicator. The process of judging is easy when a judge is capable of appraising the value of the several items he examines. It consists in determining on a standard maximum number of marks for each feature—say twelve marks, as representing the highest possible excellence. Just as the products or features fall below the standard, so must the figures representing them. It is rarely indeed that the maximum is reached, and judges who commence with it freely usually make a great mistake, as they are apt to subsequently find something better than that to which they had given the maximum before, and are then in an absurd position. With twelve marks as a standard, if you find a certain feature very good in the first garden it would be safe to give it nine, as the same feature in the next garden might be better, and worth ten; in the third it might not be so good, and only worth eight; but in the fourth it might be better than any seen before, and deserve eleven marks. So proceeding through every feature in every garden, the adding up of the figures will determine the relative merits of the whole; but practical knowledge is essential for giving exactly the right number of marks in each case, or all will be wrong at the end.

A Surprise of Garlic (A. J. S.).—You say that after a small canal was deepened several feet for the purposes of navigation, the soil that was taken out and thrown along the banks and left became covered with Garlic from seeds which, you assume, "could not have been sown by human hand, nor could have spread from plants growing in the district, as there are none for miles." Whether the plants were true Garlic or not (*Allium sativum*), we can only say that we agree the seeds were not sown by "human hand," but had been scattered in a natural manner by plants growing there at some, it may be, remote period. No one knows how long seeds will retain their vitality under favourable preservative conditions in the earth. They cannot germinate in the absence of oxygen, but when brought within its influence, also of moisture and the requisite warmth, many long-dormant unearthened seeds germinate freely. We have seen a similar instance to yours in the deepening of an ancient shallow pond, a good deal of the soil dug from below the water bed only being slightly moist. From the banks formed by this soil Foxgloves sprung up as thick as grass. We know an estate which belonged to a gentleman who was anxious to have large breadths of common Furze (*Ulex europæa*). He bought plants over and over again, but they nearly all failed to grow. The conclusion was arrived at that the land was not suitable for Furze. Subsequently, a rather deep cutting was made through it for another purpose, and on the soil thrown out Furze plants came up in thousands. A few experiments were then made, and it was found that by trenching 2 feet deep a similar result followed, and in that way clumps of Furze were established where they were wanted. Those instances came under our personal observation. Others are published of a similar nature, but still more remarkable. We cannot answer your other question; but we perhaps might if you could give the botanical name of the plant. We will make some inquiries on the subject.

Money in Mushrooms (T. D. S.).—Given full crops of Mushrooms, produced on ridges of manure, cased with soil and covered with litter, in the open air, there is no outdoor culture of anything that is so profitable, always provided the ridges are not in bearing during the time that Mushrooms are plentiful in pastures—September and early October. You do not say which edition of "Mushrooms for the Million" you have. If it is one of the early ones you should procure the latest, which is the best and most comprehensive, the price remaining the same—a shilling from booksellers, or 1s. 2d. by post. Numbers of persons have found Mushroom growing profitable, and scores of miles of ridges produce bountifully from the middle of October till the middle of June; but while several beginners succeed at the first attempt, others, as might be expected, fail. If mistakes are made as to "timing," with the consequence that the ridges are in bearing in September, the prices are too low to be profitable, while after June good crops can only be had under special conditions by experts. If the ridges are properly made of the right material, and ready for spawning about the middle of August, and good spawn is inserted, then cased, and the whole mass moist when put together, and kept so by coverings to prevent evaporation, Mushrooms will be plentiful in October, after the outdoor supply is over. July, then, is the best time for beginners to commence the collection of manure. After enough is obtained, a fortnight or three weeks must be allowed for preparation and ridging—all depending on its condition, then usually a week must pass before spawning—this depending on the heating, a few days afterwards the soil is applied, the ridges covered, and Mushrooms appear in seven or eight weeks. By commencing at the time named the manure will probably be suitable without your going to the expense of roofing the midden as you describe, but if the owner will do this by all means let him. You may perhaps have to water the mass after the shaking out is done. It may be well to have the ridge 3 feet wide and high in the first trial, and a large load of manure will be required for a yard run of ridge. All requisite details are given, and mistakes to be avoided, in the later editions of the book.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering

specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. H. K.).—1, *Phlox amœna*; 2, *Saxifraga ceratifolia*; 3, *S. altissima*; 4, *Silene maritima flore-pleno*; 5, *Saxifraga rotundifolia*; 6, *S. muscosa*. (J. B. C.).—1, *A. Spiræa*, possibly *callosa*; 4, *Lonicera sempervirens*; 5, *Limnanthes Douglasi*; the other specimens were totally insufficient. (X. Y. Z.).—1, *Pancratium caribæum*; 2, *P. fragrans*; the other specimen was *Rhamnus alpina*.

TRADE CATALOGUE RECEIVED.

J. Laing & Sons, Forest Hill.—*Dahlias, Begonias, Caladiums, Carnations.*

COVENT GARDEN MARKET.—JUNE 9TH.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, $\frac{1}{2}$ sieve	0	0	0	0	Lemons, case	11	0	14	0
Filberts and Obs, per 100 lb.	0	0	0	0	St. Michael Pines, each ..	3	0	8	0
Grapes, per lb.	1	6	2	6	Strawberries, per lb. ..	1	6	4	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Asparagus, per 100	0	0	0	0	Mustard and Cress, punnet	0	2	0	4
Beans, $\frac{1}{2}$ sieve	0	0	0	0	Onions, bushel	3	6	4	0
Beet, Red, dozen	1	0	0	0	Parsley, dozen bunches ..	2	0	2	0
Carrots, bunch	0	3	0	4	Parsnips, dozen	1	0	0	0
Cauliflowers, dozen	2	0	3	0	Potatoes, per cwt.	2	0	4	0
Celery, bundle	1	0	0	0	Salsafy, bundle	1	0	1	0
Coleworts, dozen bunches	2	0	4	0	Seakale, per basket	1	6	1	9
Coumbers	0	4	0	8	Scorzonera, bundle	1	6	0	0
Endive, dozen	1	3	1	6	Shallots, per lb.	0	3	0	0
Herbs, bunch	0	3	0	0	Spinach, pad	0	0	4	0
Leeks, bunch	0	2	0	0	Sprouts, half sieve	1	6	1	0
Lettuce, dozen	1	3	0	0	Tomatoes, per lb.	0	4	0	0
Mushrooms, per lb.	0	6	0	8	Turnips, bunch	0	3	0	9

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Arbor Vitæ (various) doz.	6	0	36	0	Fuchsias, per dozen	6	0	9	0
Aspidistra, dozen	18	0	36	0	Hydrangeas, per dozen ..	9	0	12	0
Aspidistra, specimen plant	5	0	10	6	Lilium Harrissi, per dozen	12	0	18	0
Calceolarias, per dozen ..	4	0	8	0	Lobelias, per dozen	3	0	5	0
Coleus, per dozen	4	0	6	0	Lycopodiums, dozen	3	0	6	0
Dracæna, various, dozen ..	12	0	30	0	Marguerite Daisy, per				
Dracæna viridis, dozen ..	9	0	18	0	dozen	6	0	0	0
Erica, (various) per dozen	9	0	18	0	Mignonette, per dozen ..	4	0	6	0
Eunonymus, var., dozen ..	6	0	18	0	Myrtles, dozen	6	0	9	0
Evergreens, in variety, per					Palms, in var., each	1	0	15	0
dozen	4	0	18	0	" (specimens)	21	0	63	0
Ferns in variety, dozen ..	4	0	13	0	Pelargoniums, per dozen ..	8	0	12	0
Ferns (small) per hundred	5	0	8	0	" Scarlet, per doz.	3	0	5	0
Ficus elastica, each	1	0	7	0	Rhodanthe, per dozen ..	4	0	6	0
Foliage plants, var. each	1	0	5	0	Spiræa, per dozen	6	0	9	0

Bedding plants and roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in variety.

	s.	d.	s.	d.		s.	d.	s.	d.		
Anemones, dozen bunches ..	1	6	to	3	0	Myosotis, dozen bunches ..	1	6	to	2	0
Arum Lilies, 12 blooms ..	2	0		4	0	Narciss (various), dozen					
Asparagus Fern, per bnch.	2	0		3	6	bunches	2	0		4	0
Bouvardias, bunch	0	6		0	9	Orchids, var. doz. blooms	1	6		12	0
Carnations, 12 blooms ..	1	0		3	0	Pæony (English), Pink,					
Cornflower, dozen bunches	2	0		4	0	dozen bunches	9	0		12	0
Eucharis, dozen	3	0		4	0	Pæony (English) Red,					
Gardenias, dozen	2	0		4	0	dozen bunches	4	0		5	0
Geranium, scarlet, doz.						Pæony (French), per bunch	0	6		0	9
bunches	4	0		6	0	Pelargoniums, 12 bunches	4	0		8	0
Iris (various), doz. bunches	4	0		12	0	Pyrethrum, dozen bunches	1	6		3	0
Lilac, White (French), per						Roses (indoor), dozen ..	0	6		1	0
bunch	8	6		4	0	" Tea, white, dozen ..	1	0		2	0
Lilium longiflorum, 12						" Yellow, dozen (Niels)	1	6		4	0
blooms	2	0		4	0	" Red, dozen blooms ..	1	6		3	0
Lily of the Valley, 12 sprays,						" Safrano (English), doz.	1	0		2	0
per bunch	1	0		2	0	" Pink, per dozen	4	0		6	0
Maidenhair Fern, per dozen						Smilax, per bunch	4	0		5	0
bunches	4	0		8	0	Tuberose, 12 blooms ..	1	0		1	6
Marguerites, 12 bunches ..	2	0		3	0	Wallflowers, dozen bunches	1	6		4	0
Mignonette, dozen bunches	3	0		6	0						



A SERIOUS COMPLAINT.

EVERY now and again comes an outcry as to the ravages of certain diseases amongst stock. That all stock is mortal is, alas! a fact too well known to need comment. We farmers expect and calculate for a certain percentage of loss, but how often the loss exceeds even the most liberal estimate. An extreme season either

of wet or drought usually leaves a mark somewhere, and if one class of stock escapes scot free another succumbs.

Some diseases are, so as to speak, under our own control, and it is from want of attention to some elementary sanitary rule that we suffer. Other complaints, again, are as the "destruction that walketh in darkness," and our men of science are nonplussed. Under most governments money is spent, and men found who with tireless energy take as their life work the study of disease, and by patient investigation work out some system of prevention or cure.

Our attention has been called lately to some cases of "milk fever," and we think it will be time well spent should we just consider this disease from one or two points of view. Milk fever we should say is decidedly an outcome of civilisation. We want to go one better than Nature, and so Nature takes her revenge. Among all the mammals of the farm the only one subject to milk fever is the cow. We have bred and selected, and selected and bred, and increased her feeding capabilities and her milk-producing qualities till we have nearly arrived at perfection. So much beef so much milk, and so greater risk of fever.

This complaint is known also as parturient apoplexy—attacks the cow shortly after or occasionally before, or at the time of parturition. Heifers with their first or second calf are practically free from this complaint—in fact, it is almost an impossibility to find a case. Every succeeding calf increases the risk, though often it will be found in a large herd that a middle-aged cow is fatally attacked before the oldest.

Of course here natural constitution is a great factor. It is the best milker that succumbs; the inferior cow is safe. Notes have been taken and observations respecting the various breeds most commonly known among us. No breed is so subject to milk fever as an English-bred Jersey or pure-bred Yorkshire—both standard types of good milk producers. Suffolk, Ayrshire, and Dutch follow in the order given. We try to breed for early maturity; we feed generously, often "not wisely but too well;" we give stimulating foods of all descriptions; we keep a good milker on year after year, instead of feeding her off and filling her place with a promising youngster.

Even respecting grass-fed cows, it must be borne in mind there is grass and grass. You do not expect to find Figs on Thistles, neither is rich grass grown on sandy poor soil. Then, again, weather is matter for consideration. The greater number of calves are dropped in the spring; yet among the fewer summer calvers you will find a much greater number of cases of milk fever. Once a cow has been down with ever so slight an attack, she always after calves at great risk. Better avoid all chances of that sort. A butcher's price is more satisfactory than a few shillings from a knacker.

Now, then, for preventive measures—forewarned is forearmed. Baring in mind that a cow of full habit of body is most liable to attack means must be taken previous to calving to keep her just in a healthy breeding state. To get at this it is wise to knock off all rich food; let what she has be plain and easily digested; give her daily exercise; see that the cow-house or box be kept clean and wholesome, ventilation not neglected, and give her occasional doses of aperient medicine.

In case of an attack remedies prescribed vary; some savants rely on strong aperient medicines, others approve of bleeding; but whatever course is adopted remember lime is of the utmost value, and measures to be successful must be prompt. Warm clothing is very desirable, and circulation in the legs should be promoted by constant rubbing with turpentine or other stimulant.

The spine, too, should be likewise rubbed, and the head kept cool by cloths dipped in water. Bear in mind that in the administering of food or medicine the greatest care should be exercised lest the liquid flow into the bronchial tubes rather than the stomach. Stimulants, too, are of advantage, wine being better than spirits, not so irritating nor so evanescent. A good "vet." should be on the place as soon as ever he can be got.

A writer of some eminence relates his experience of the management of a herd of Jerseys. The losses by milk fever had been at the rate of 20 per cent. per annum. The herd was carefully taken in hand, everything that science and closest watching could do was done, and even then the death rate was never reduced below 8 per cent. of the whole herd. Our best advice is, Do not overfeed your breeding cows, do not keep old stock, and above all use plenty of physic (salts) before calving, possibly after if the bowels need it, if not a dose of tincture of opium as a sedative.

As a proof that this is a preventible disease, we may give our own experience of the last twenty years. We keep no very big old cows, indeed never let them have more than four calves. Cake and corn bills are of much moment, that they run no risk of over-feeding. Our average is twenty calves per annum, and up to this date we have had no loss at all. The breed is Shorthorn, and some Lincolnshire Reds. A friend, who for many years has calved fifty cows per annum, has for the last three or four years had no cases whatever; before that his losses were 2 per cent., or one in fifty. Remember, too, absolute quiet after delivery must be insisted on, and the stomach kept free from over-repletion.

WORK ON THE HOME FARM.

No sooner had we completed last week's notes than rain commenced to fall, and has continued in large or small quantities every day since. The rainfall has now quite satisfied—nay, more than satisfied—present needs, and we actually have to wait a day or two for the land to become dry enough to proceed with Turnip-sowing. Once started, we shall not stay the drill until all are in. Advantage was taken of the drought to kill the twitch, and now everything is favourable for the growth of a fine crop.

The difference in the appearance of nature between this week and last is indeed remarkable. Cereal crops have grown inches in the day, whilst pastures, from being bare and brown, have put on a robe of richest green. Sheep and cattle have been quite unable to keep pace with the growth, and there seems now a prospect of keep in abundance. Had the weather remained dry much longer many meadows would have been cut, as it would have been useless to wait for more growth. The rain, however, has postponed haymaking for the present, and crops will gain in weight proportionately as they keep growing, and put off the seeding period.

Potatoes are growing fast, and require horse-hoeing and cleaning faster than they can be attended to. This work, with the putting in of the Turnips, will occupy all hands available, and keep them more than busy. Some of the Potatoes are nearly ready for earthing-up, so our hands are full indeed.

One piece of land (intended for Rape), before the rain, was like a mixture of paving stones and cricket balls. We have harrowed it to-day, and it is almost as fine as sand; in such fine condition that we shall be tempted to drill at once if time and Turnips will allow.

Cattle are doing well on growing pastures; but the flush has rather had a scouring effect on lambs, particularly on two or three-year old seeds. Maggots are becoming troublesome, and will be so whilst the weather remains damp. The ewes require careful watching, as, being lately clipped, lying on the damp ground may be the cause of downfall in the udder—a very fatal complaint, and most difficult to deal with if not taken in time.

METEOROLOGICAL OBSERVATIONS

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.	9 A.M.				IN THE DAY.				Rain.	
1897. May and June.	Barometer at 32°, and Sea Level.	Hygrometer.		Direc- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In Sun.		On Grass.
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	Inchs.	
Sunday . . . 30	29.845	61.8	55.4	S.	55.2	71.6	51.7	116.1	47.6	0.409
Monday 31	30.010	61.3	55.1	S.W.	56.7	71.4	49.2	114.5	43.1	0.219
Tuesday 1	29.850	58.9	56.0	E.	57.8	69.9	52.0	101.7	46.4	—
Wednesday . . 2	30.068	63.7	54.1	N.W.	57.0	68.8	48.2	92.9	40.0	—
Thursday .. 3	30.135	60.7	57.9	N.	57.3	69.7	54.2	101.2	45.2	—
Friday 4	30.113	56.9	54.0	N.	57.8	70.1	50.0	111.9	50.7	—
Saturday .. 5	30.132	57.8	55.4	N.	59.1	74.6	55.0	113.9	55.1	—
	30.022	59.8	56.0		57.3	70.7	51.3	107.5	46.9	0.624

REMARKS.

30th.—Overcast early; generally sunny day, but close. Thunderstorm with heavy rain from 7 P.M. to 8 P.M.
 31st.—Generally sunny all day.
 1st.—Thunderstorm from 4 A.M. to 6 A.M., and rainy till 11 A.M.; alternate cloud and sun in afternoon.
 2nd.—Sunny early; overcast day.
 3rd.—Generally overcast; a little sun at midday.
 4th.—Overcast morning; sunny from 0.30 P.M.
 5th.—Overcast till 10.30 A.M., bright after.
 A rather dull week, but warmer, with acceptable rain in the early part of the week
 —G. J. SYMONS.

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Journal of Horticulture.

THURSDAY, JUNE 17, 1897.

EXPERIMENTAL WORK IN HORTICULTURE.

THE importance and usefulness of well devised, carefully conducted experiments cannot be too highly estimated; yet with all the good work embodied in British horticulture which has gained for our cultivators world-wide fame, anything like exhaustive experimental research has been rarely attempted. This is not because there is a lack of subjects requiring investigation, for every department teems with them; but the reason may be generally found in the length of time and expense needed to secure satisfactory results. Perhaps this neglect may be partially traceable to the old-time notion that the introduction of scientific methods is opposed to good practice. Happily this remnant of the past is steadily disappearing, and the more advanced of the present generation of horticulturists of all classes are ready to acknowledge that "Practice with Science" must give the best results in every way.

Probably no part of the horticultural community would more directly derive pecuniary benefit from the results of experimental work than nurserymen. Though few have devoted themselves consistently and continuously to any one subject, those who have done so have, in most cases, reaped an ample reward ultimately. This applies more particularly to hybridising and crossing, which have, in some instances, yielded returns in a few years; while in others a long period of waiting has been requisite. The excellent work performed by Messrs. John Laing and Sons in the development of the Tuberous Begonias, by Messrs. J. Veitch & Sons in raising hybrid Orchids, by Messrs. T. Rivers & Son in improving hardy fruits, and by the chief seed firms in securing fine types of vegetables, may be taken as examples of what can be effected by systematic and continuous efforts in cross-breeding and selection.

But that is only one section of work; there are others which demand equally careful attention, and would probably give similarly notable results if followed up. For instance, the application and comparison of artificial manures for all garden crop offers an immense field of research, and, in some cases, might yield results that would bring substantial money returns if properly applied and

developed. As regards many garden crops, it should be possible to have compounded manures, specially fitted for their respective requirements, instead of applying general mixtures which, however good in themselves, must, in many cases, be to some extent wasteful—that is, more of certain constituents are employed than are required by the particular plants for which they are used. The economic and practical value of a series of experiments dealing with manures for garden plants would be very great; but such an undertaking would have to be designed on a thoroughly scientific and practical basis to insure reliable and useful results.

Then, too, there are many cultural problems that need solution, or difficulties that have only been partially or locally mastered, and therefore require more extended observation or repetition in other districts. Much that perplexes the horticultural student can only be satisfactorily elucidated by an accumulation of accurately recorded experience from gardens in diverse soils and situations, and though the volumes of the *Journal of Horticulture*, for instance, furnish an encyclopædia of such observations; yet they would require an immense amount of labour or methodising and condensing to give the essential points in a comparable form. Thus it is that in the daily work of thousands of gardens, what may be termed desultory experiments on scores of important subjects are conducted, the observations upon which, for want of methodical arrangement and recording, are lost to all but those immediately concerned in the work, nor do they even derive the full benefit that might accrue under systematic treatment.

Gardeners certainly, in but few instances, can devote either time or labour to experimental work pure and simple; the demands of the present time are too great, and the means allowed too restricted to permit of any fanciful indulgencies in "experimenting," yet an observant man is often induced to try fresh methods in seeking to economise labour or expense, and his efforts are really practical experiments that may be perfect in themselves and only need careful noting and judging of the results to be of sound service. Too often, however, such experiments are defective, and in the very way that a scientific man would be most likely to avoid, and it is there that the union of practice with science becomes important. It unfortunately happens that it is difficult to bring about this union, for there is much too frequently a mutual distrust that is in direct opposition to all progress. The practical man is apt to look askance at the work of the scientific man because he believes it to be purely theoretical, and the latter falls into a similar mistake in attaching too little importance to the working experience of years which has at least been able to show many cultural successes.

It is scarcely possible to imagine a better combination for experimental work in horticulture than that of a gentleman with a mind trained in scientific research, and an educated cultivator who has been similarly trained in his calling, and whose powers of observation are naturally acute. Such a union of forces is possible to thousands of amateurs who wish to render their gardens something more than mere sources of supply to the kitchen. The interest which can be obtained from experimental work even on the smallest scale is wonderful and never-ending, and it is difficult to imagine any more delightful form of recreation to the thoughtful man engaged in an exacting profession or the rush of a business. Many most useful experimental stations could be thus formed, and all that would be required would be methodical observation in a general basis. Why should not such observers, properly accredited, be placed in communication with the Royal Horticultural Society as a centre, in the same way that the Royal Meteorological Society receives observations from different stations throughout the country? The material collected in this way would furnish most valuable information as time passed, and coming from so many different places and soils would render the facts of much greater utility than if from one or two stations only. Even though each individual observer had to publish his own results, such experiments are greatly needed, and a few remarks will therefore be offered on procedure in a future issue.—OBSERVER.

EARLY CHINESE PRIMULAS.

THE Chinese Primula is regarded as an exceptionally useful decorative plant because of its freedom in blooming during the winter, when, with the exception of a few popular early bulbs, there are few flowers to give a display. In order, however, that Primulas may bloom in the early part of the winter, it is necessary that strong plants be secured from early sowings. These should be grown under favourable conditions, when they may be relied upon to give satisfaction. Pots or pans of seedlings from the early sowings ought now to be receiving cool treatment, either on a shelf near the glass in a greenhouse, or similarly situated in a cold frame. This renders them sturdy by inducing a steady growth.

Before the seedlings begin to crowd each other, transplanting ought to take place. If this is carried out while the seedlings are yet small, they are best placed about 2 inches apart in pans or boxes, but the larger examples that have remained a longer time in the receptacles in which they germinated, may with advantage be placed direct in small pots; $2\frac{1}{2}$ -inch size pots are usually the most suitable, but seedlings that have germinated thinly and since grown freely, may probably have developed sufficient roots to occupy larger sizes at the first potting.

The soil must be light, open, and fairly rich, so as to encourage the formation of abundance of fibrous rootlets. Loam, leaf soil, with silver sand and crushed charcoal, form a good compost. Drain the pots or pans well, and use the compost in a moist, sweet, friable state, so that heavy watering will not be necessary at first. Gently sprinkling the plants and soil will afford the refreshment and moisture demanded.

Shade from bright, hot sunshine is absolutely necessary, not only to prevent excessive evaporation from the soil, but to guard the leaves against scorching. Shade, moisture, warmth, and a genial atmosphere are the prime essentials for inducing active growth. To these conditions must be added the gradual admission of air as the strength of the plants increases. Let the plants have all the light possible other than fierce sunshine.

It is well to move the sturdy young plants from pans or boxes at the earliest moment after the leaves encroach on each other's space. Pot singly in similar compost to that used previously. For the majority 3-inch pots will be large enough. They must be clean and efficiently drained. In potting sink the plant low, but keep the growing point well visible. Rootlets will be emitted from the stem below the bottom leaves. These, of course, are of great advantage in strengthening and assisting growth. Place the pots in a cool frame, standing them on a moist base of ashes not far from the glass. Maintain a moist atmosphere by sprinkling the plants lightly in the afternoons of warm days, when the shading employed in screening them from the midday sun is taken off. Moistens also the unoccupied spaces (if any) in the frame. For the first week or ten days the lights may be kept closed. Afterwards admit air gradually.

Watering is no less an important detail than the preceding. As the roots take possession of the soil and ramify in it towards the sides of the pots, the soil becomes quickly dried on many occasions, rendering frequent attention necessary. Small pots in hot weather should be examined at least three times daily, ascertaining the condition of each individual plant before applying water. Indiscriminate watering is an evil. It is apt to sour the soil, especially of those plants which receive more than they want. Water warmed by the sun or taken out of a greenhouse tank is preferable to freshly drawn cold water.

Unless larger plants are required the next potting may be final, if the plants are strong enough to be shifted into 5 or 6-inch sizes. As soon as the small pots are well furnished with healthy fibrous roots the potting may take place. The roots and soil must be thoroughly moist when the move is carried out; therefore sometime previously well water the plants. The soil for potting must be good fibrous loam two parts, sweet flaky leaf soil one part, decomposed manure half a part, a quarter part coarse silver sand, and the same quantity of crushed charcoal. The whole must be well intermixed by turning over several times, and bringing it to a moist state, if dry, by sprinkling with tepid water.

The drainage in the pots must be well placed, and covered with a layer of turfy fibre, to prevent the soil being washed down among it. When the plants are turned out of the small pots, pick away the crocks from the base, and place them in suitable-sized pots before introducing any soil. This admits of the plant being low enough, so that any bare stem visible can be covered with soil, and the potting be more firmly carried out. If too low, soil may be introduced to raise it before admitting the plant. At this shift there should usually be a space of an inch all round the ball. As the soil is filled in round, shake it down level, and make it somewhat firm with a potting stick. It is quite important that it should be as firm as the

old ball. Soil, however, of a retentive character ought not to be rammed hard.

The details of management after potting may be on similar lines to those advised for the younger plants. A good watering will be required in a few days after potting, then wait before giving more, or until the surface dries. Keep, however, the surroundings moist, and for the first week limit the supply of air. Shade during the middle of the day, but at other periods allow plenty of light, the plants having a position near the glass. Growth will soon proceed freely again, when air may be gradually and regularly given, finally admitting a supply on favourable nights as well as days.—E. D. S.

VEGETABLES FOR HOME AND EXHIBITION.

ONE of the chief difficulties a writer has to encounter in dealing with such a theme as this is to say something entirely new. The best thing is not to try to do so, but to say something that is believed to be true. The first truth to be impressed on the minds of the young especially is that the production of a continual supply of vegetables is an indispensable part of a gardener's duty. It follows, then, that young gardeners should pay all possible attention to this phase of their occupation, and strive to become masters of the art of vegetable culture. Yet it is possible to point to men who have passed from one establishment to another during their years of probation, and then taken head gardener's positions without having done a week's work in the vegetable department, which they really know very little about.

This is not always the fault of young men. They are engaged for the houses, and the labourers do the kitchen garden work. The only opportunity the former have of becoming conversant with this all-important branch of their calling is by going round in the evening and taking notes of the operations. Something may be learnt in this way 'tis true, but the use of the spade teaches lessons that are rarely forgotten, and taking active part in the work gives an emphasis that cannot be obtained by precept. Many a young gardener goes through the routine of decorating, propagating, plant and fruit growing without being able to say that he has passed a similar period in digging and trenching, sowing, and planting, with other operations connected with the production of vegetables. No such man can call himself a gardener in the truest sense, and I would urge on all probationers the importance of obtaining sound knowledge gained by practical experience and observation on this phase of their calling, as they will in due time have to cater for the wants of the kitchen as well as the drawing-room.

A word also to head gardeners who know the logic of all this. Their experience tells them the importance of being good vegetable growers, and knowing this they will do well to remember that the young men are not only under them to fill certain offices and to perform certain duties, but also to learn that which in after life shall fit them for the positions which they, the present gardeners, will have to vacate. Bearing this in mind, they may so regulate the labour that the young men when making changes can truthfully say that they have spent a portion of their time in the kitchen garden. It is not enough for a youth to spend the first year or so of his career in the vegetable department, and then think he has learnt all there is to know. Soils and conditions vary so much that a method of cultivation which answers well in one place results in partial or entire failure in another, hence the necessity of keeping in close practical touch with the work of the kitchen garden.

Gardeners nowadays have to reach a high standard in vegetable culture. Those who grow for sale know that it is only first-class produce which is remunerative, and those whose duty it is to supply the wants of private families know that employers want quality and a regular supply, therefore they must make themselves conversant with the best varieties, and work generally on lines that will give the best results. In variety there is a danger of confusion, as there seems no limit to the named forms of each kind of vegetables, and often there is a difficulty in discriminating between them. Whether there are not many of these too much alike to be classed as distinct varieties is a matter for argument; and here, again, a man must rely chiefly on his own experience, and he will not be long in removing the chaff from the wheat.

The latter remarks are also applicable to the cultivation of vegetables for exhibition. The best varieties must be obtained, in order to be able to compete with any hope of success. Comparatively speaking, gardeners who grow vegetables for show are limited, and though such names as Waite, Wilkins, Pope, Beckett, and Foster flash across one's mind, these are but few when we think of all the kitchen gardens in the country. Perhaps vegetables are not made such an important feature at our great shows as they deserve,

though it is gratifying to note that the interest is a growing one. The promoters of horticultural shows have to cater for the public, and it is only natural that the average visitor who is not a gardener will see more to attract him in a beautiful group of Orchids or other flowers than he will in a collection of vegetables, no matter how good. At many important shows the competition is chiefly for prizes offered by seedsmen, and those who have seen the collections that have vied with each other for the substantial prizes offered by Messrs. Sutton & Sons at the Reading Show know to what a pitch of excellence vegetables can be grown, and with what taste they may be displayed on the exhibition table.

It is at village and cottagers' shows that vegetables are most appreciated. They form the chief items at such exhibitions, and here, too, we may notice signs of growing interest and marked improvement. A great drawback in the past has been the method, or rather want of method, in the judging of vegetables, and this has been felt at shows of all kinds. For years a conflict has been going on between size *versus* quality, and though the latter is now gaining the upper hand there are judges left of a very old school who still believe that a vegetable to win a prize must necessarily be large, and therefore other points are sacrificed in favour of this. Confusion has been, and still is to some extent, the result, and exhibitors are often, in the absence of any rules to guide them, at a loss to know whether their largest or medium-sized examples are most likely to find favour in the eyes of the judges. I say in the absence of any rules, and here I must apologise to the Royal Horticultural Society, whose really excellent code was drawn up and published to meet such cases as this. To use the words of a proverb, everybody knows the ease with which a horse may be led to the water, and everybody is aware of the impossibility of making him drink unless he is disposed to do so. So it is with judging rules. They may be published, but there is a certain amount of conservatism in human nature which leads a man to believe that a rule he has followed for a long time is the right one; and I am afraid, in spite of the code of rules, the man who has favoured size for so long will favour size so long as he adjudicates, and it is only time that will put the judging of vegetables on such a basis that the exhibitor shall know exactly the ends at which he must aim.

It is only fair to say that this difference of opinion is more noticeable in small than large shows. Not long ago I asked a judge at a rural exhibition why he had given the first prize to a pair of huge, coarse Cabbages and passed over others of far superior quality. By way of explanation, he simply answered, "Well, it's a cottagers' show, you know," and looked greatly astonished when I failed to see the logic of the argument, if such it can be called. The judge referred to is one of a class still common, who seem to hold the opinion that the first consideration of the small grower is to get something big in the way of vegetables, and all other qualities are of minor importance. Size, consistent with high quality, is another matter, and the sooner this is more fully understood and acted on the better it will be for all concerned.

Next to producing the best vegetables the most important point is that of displaying them to the best advantage on the show table. They should be so arranged as to be pleasing to the eye, though the medium must be aimed at. Many exhibitors weaken their chances by the injudicious use of garnishing material, and in trying to make their collections look well overdo it and spoil the effect entirely. Here again I offer a word to young gardeners when visiting shows not to spend all their time among the fruit and flowers, but to give an adequate portion of it to the vegetable department, and take notice of the good points and the defects, the methods of arrangement, and so forth. The splendid examples that are shown by such men as I have named are not attained without judgment and study, hard work and constant attention, and we must remember that it is one thing to stand before a show table and criticise, and quite another to produce vegetables of equal merit. I hope in subsequent articles to give notes on the cultivation of different kinds of vegetables for kitchen and show table that may be of interest and assistance to some readers of the *Journal of Horticulture*.—A GROWER AND JUDGE.

To be continued.)

HELIOtropES.—Although fifty years ago Heliotropes were bedding plants, yet there was but one—and that a light flowered, somewhat coarse growing variety—in cultivation. Now we have many varieties, strong and dwarf, the latter being considerably used either for massing or as carpet plants beneath white Fuchsias, variegated Abutilons, or standard Ivy-leaf Pelargoniums, and their rich perfume is greatly enjoyed. Of dark hues, Comtesse de Mortemarte, President Garfield, and Jeanne Daudier are of the best; and of lighter ones White Lady and Paul Pfitzer are excellent. This variety in colour and habit enables the Heliotrope to be more largely grown in gardens or as pot plants, for so grown they are valued for decorative purposes.—A.

WANDERINGS UPON WHEELS.

A LONG anticipated trip with a daughter, upon bicycles, which was originally intended to include several places of horticultural and especially rosarian interest, had unfortunately to be postponed two or three times, with the usual result that several localities had to be omitted altogether. Mr. Lindsell was unable to receive us at Hitchin; Mr. Mawley was also not at home at Berkhamsted; Mr. George Paul wrote that he was receiving, on the day suggested, The Scribe and Mrs. Ancient Briton (these are not exactly the names he gave to his guests), but that his son would welcome us; and yet, entirely through the writer's fault, we did not go even there after all.

We started soon after midday from Bedford, on May 31st, our destination being some seven miles south of Dunstable. We did not go the nearest way, as I wished to visit the grand old rectory garden of my childhood, not far from the scene of Mr. Empson's horticultural triumphs, which I should like to have glanced at. The old garden was but little changed: many of the trees looked pretty nearly the same, as far as I could judge, as they did fifty years ago. Even the Asparagus bed, in the old place, looked exactly as it used to, with apparently the same Raspberries growing beside it. One tree, a yellow Chestnut, had grown considerably, and become quite a fine specimen. I was told it was one of the biggest in the county. It must be a very slow-growing variety, for it certainly altered very little, in my recollection, during my childhood and early manhood.

Away again south, with little worthy of notice save our continued blessings on the Beds County Council, or whoever is responsible for the truly magnificent roads of the county, till Dunstable is reached. What a pity so much of those fine downs is under plough. Surely that uncanny-looking chalk soil would bear sweet short grass, with greater advantage to the pocket as well as to the eye, than ordinary farm crops in these dry seasons. I was amused, on leaving Dunstable, where we had to ask our way, to be told that after taking a certain turn, we were to "bear a little to the left." This was warmly impressed on us as a parting injunction. Somehow or other this tickled me much, for if there had been a turning to the left (and as a matter of fact there was not one) we must either take it or leave it, and I could not think where the "little" came in. The lady solved the matter by persistently keeping on the left side of the road, but it did not seem to me (we were now in Bucks) any better than the other.

That night we admired a vicarage garden at our resting-place, reduced from chaos to admirable order by the vicar and his sister with the help of an occasional boy, and I told them of two or three of the principal faults of the ordinary groom and gardener. One is that he will sow everything too thickly, and not thin early enough. Another is that on putting out plants, say Strawberries or the Cabbage tribe, he will dig his ground and plant as he digs. The truth that such things like to be planted in firm hard ground is, I venture to say, very generally unknown to the ordinary cottage gardener.

Another thing I mentioned is that, a few days before, I found a man watering his trees. It does not matter whether they were Apple or Rose trees, or whether it was water or liquid manure. He was putting it, a few inches wide only, just round the stems. Touching him upon the shoulder I said, "If your wife were going to give you a cup of tea, is this the end of your arm she would put it to?" "No." "Why not?" "Because I catch hold with the other end." "Just so," I said; "and yet you are pushing their tea against the underground shoulders instead of the hands of your trees. You know, if you come to think, that the trees catch hold of nutriment at the end of the roots instead of the bottom of the stems." He was digging in a thoughtful manner, with his head on one side, when I left him. And yes! I do verily believe he was thinking.

I found next day, when we started about one o'clock, that it was further to Hemel Hempstead than I had anticipated; moreover the wheels of my chariot, for some reason that was not assuageable by oil, ran heavily, and the road was steep and bad. We went right through Lord Brownlow's beautiful park at Ashridge, but the only thing I saw they propagated in quantity was pheasants. Thence by an indifferent road to Hemel Hempstead, and on by a really bad one to St. Albans. Here whatever mysterious nutriment the iron steed wanted was found at a cycle shop, and grateful tea refreshed the travellers. A good road and easy going wheels to Hatfield, whence we skirted the park for some distance without getting a glimpse of it, and so nine long lonely miles to Hertford. A short rest, and on again; a grand

road to Ware, and thence, in the cool of the evening, nine more miles speedily rattled off northward on the old North Road to our destination for the night.

Next morning I was a bit tired, the first seventeen miles on a stiff machine of the day before accounting for it, the lady being much the fresher of the two. We had passed through a swarm of May-flies on nearing the trout stream the day before. And a day by the river seemed altogether more congenial than another journey. Moreover, Cheshunt would keep, but a rise of May-fly will not. So I telegraphed to Mr. Paul. And the day at Cheshunt that I have promised myself for years has still to come off.

On the Thursday we started early, and rode to Bishop's Stortford, thence by train to Braintree, and then rode for home. A good, but very straight and monotonous, road it is through Coggeshall to Colchester, with nothing worthy of notice but some splendid fields of Trifolium. We arrived about twelve o'clock at the house of Mr. Orpen, West Bergholt, who is now very well known and most justly feared as a competitor in any amateur Rose class.

On entering his garden one of the first things I saw—a gracious compliment from my host—was a man vigorously and skilfully wielding, with due appreciation, a Sproughton hoe. Mr. Orpen then showed me a tool of his own devising for stirring the ground; two prongs or tines at the back of an ordinary field hoe, and at right angles to the handle for pulling through the ground, and thus "cultivating" it after the manner of a steam cultivator just as the Sproughton hoe is, after all, only a modified duplex form of the horse hoe.

The first Rose to catch my sight was a splendid specimen of Fortune's Yellow on a south wall. The plant itself was just in its prime, about six years old, covered with unusually good flowers, just at their best, and yet full of growth. There was a great deal of variation in the colour of the blooms, and they were rather differently shaped from those on older and less vigorous plants, being most decorative and handsome even when fully expanded. Mr. Cecil Cant tells me there is an increasing demand for this lovely old Rose, but that he still has a good many complaints of its failing to bloom in some seasons. He thinks it requires a warm autumn to ripen the wood, but Mr. Orpen's certainly did not have a good autumn last year, and a plant on a house in Sproughton never fails to bloom well. It is a Rose that everyone who has room on a south wall should try; and one of its great advantages is that it is very early, and always blooms in May.

Mr. Orpen's Rose plants, and especially his Teas, were of course of great interest to me. They seemed backward, but so, I suppose, are everybody's. The growth was not excessively strong, but I know that the relative positions of growth to bloom are very different at Colchester to what they are at Sproughton. There is something in the soil congenial to grand blooms—is it potash?

His Teas were not so hard pruned as mine, but he suffers less from frost, having a valley beneath him for the cold to "fall into." The number of plants did not seem to be great, but where every one is good, and a weakly one is not tolerated but at once removed, such a large number is not necessary. That Mr. Orpen is a wonderful exhibitor I had known for some time. I am now also prepared to say that I think he is a very good cultivator of Roses.

Poppies, 9 inches across; Sweet Peas very forward, having been raised in pots or boxes; and a good many Irises; besides some extremely healthy-looking fruit trees, are the other features that I particularly remember. Mrs. Orpen is very fond of Irises, and was disappointed that my taste has not yet been educated up to appreciating the "greenery-gallery" tints of some of her favourites.

Then to a welcome lunch, the rooms decorated with Mrs. Orpen's well-known skill and taste, and certain decorations, again showing the graceful courtesy of my host and hostess, being not obtruded on my notice. There were three or four very handsome silver cups and pieces of plate, two of which had graced my sideboard not very long ago. One of these I do not expect to handle again. We will talk about the other a few weeks hence.

And so we remounted our steeds, past Mr. Frank Cant's, where there was no time to linger, and on to the veteran's at Myland Lodge. I was very sorry to find him (Mr. B. R. Cant) in much enfeebled health, and not able to go far among his Roses. Cut-back H.P.'s were beginning to show colour, and looked well; a few Teas were out by the walls, but we had not really time to see anything but a few new Roses under glass. The three showing

best were all Hybrid Teas, and all from Pernet-Ducher—Madame Cadeau Ramey, Ferdinand Batel, and Souvenir du President Carnot, which last was only new to me. The first-named of these three impressed me most, but it requires a thorough knowledge of the standard of perfection attainable by grafted plants under glass to judge of their comparative merits as outdoor plants.

And then, after a grateful cup of tea, for the pleasant ride of seventeen miles home: a little marred by one of my pedals coming hopelessly off halfway, and necessitating the somewhat lame conclusion of riding the last eight miles home on one leg, but a very enjoyable trip all the same.—W. R. RAILLEM.

PRIMULA TRAILLI.

IN your note of 29th April, page 361, on the award of merit to *Primula Trailli*, shown by me at the Drill Hall on 27th April, you say, "The flowers of this rare *Primula* are borne on footstalks about 9 inches in length." As a question has been raised in some of your contemporaries as to its being closely allied to *P. Munroi* and *P. involucrata* I send you a photograph to show its much larger growth. I took the measurements carefully. Breadth of plant, $11\frac{3}{4}$ inches; height of tallest stem, 16 inches; length of leaf, $6\frac{1}{2}$ inches; expanded part of this, 3 inches; width of this last, $1\frac{1}{8}$ inch. It had ten flower stems. The plant was grown in a cold frame, and when the light was on placed close to it, so as not to be drawn up.

I received the seed about two years ago from a friend (a good botanist) in the Himalayas, with injunctions to be careful with it, as the plant had not been flowered in this country. He described it as *Primula Trailli* (Watt), Himalayas, 17,000 feet. I think that with some points of resemblance to *P. Munroi* and *P. involucrata*, notably in its very sweet smell, it is essentially distinct, and a new Primrose that will be a valuable addition to the hardy flower garden. This note would have been sent earlier, but I had to wait for the photographs.—GEORGE F. WILSON.

[We are much obliged to Mr. Wilson for the information he has furnished, and for the photograph from which the illustration (fig. 99) is reproduced.]

WALKS.

WE have decked our much-praised island home, the Bonnie Britain, with many fair gardens, the premier emblems of civilisation. To enjoy our beautiful scenery, we trace out certain tracks upon which we are led to enchanting nooks or gay fairyland spots of waterfalls and wet herbage. Past these, to calm, cool meadows, and still quiet waters; now changing a gravel-laid track for soft green sward, anon a sandstone-coated, serpent-like trail, among shady woods, or more open groups of graceful trees and flowering shrubs, planning all on the principles of utility and purpose.

Walks, where'er they go, must have an apparent purpose; no unneeded detours or meaningless sweeps on open surface. Reasons must be apparent for divergences or curves in walks. To conceal the extent of limited grounds, ingenuity in the grouping of trees and shrubs, or in raising and mantling a mound, bower, rootery, rockery or other object, is desirable, and winding our paths between and among these, in easy flows, are items of landscape gardening upon which much has been said and depends. Under circumstances, then, it may behove us to "make" obstacles in our path's course if they do not naturally exist.

We do not purpose mentioning the general routes of walks between the mansion's entrances and the scenes of interest about, for all are surely acquainted with the prevailing adoptions. The more formal walks embrace the circuit of the house, its terraces, if there be any, and the formal flower garden and fore-work of pleasure grounds. Briefly let us record a few observations on the making of walks, and their fitness to surroundings. According to the extent of the demesne and their positions their breadths vary; 7 or 8 feet is frequently suitable, but "circumstances alter cases."

Properly made walks ought to have a solid dry base, drained in all cases, except on gravelly lands, with a foot or so of graded stones, surfaced finely, and rolled hard. Thus—1 foot depth of material is removed from the staked-out breadth, the foundation secured hard and dry—for the foundation is the road—made convex with side drains as required. Place on the hardened base

4 inches of well-packed large stones, and about 8 inches of smaller ones, finishing with a raised centre (1 inch rise per 6 feet breadth) with pit or other gravel, and some binding material; soak and roll the now-completed walk till it is smooth and hard.

Various surfacings are employed other than gravel, such as asphalt or a dressing of coal tar, heavily sprinkled before it sets with yellow Derbyshire spar, white "chuckies," or quartz chips, mayhap red or yellow sandstone, rolling firmly and clean. Such walks are at all times pleasant, always smooth and free from weeds. The best of gravel walks become rough in continued dry weather, at which time to walk on them is not a pleasure, but a punishment.

The colour of walks is another consideration. Red and yellow are warm colours; grey, and it may be white, are cold in appearance. Grey river gravel harmonises with grey buildings, and is much used for pleasure grounds and by lakes. Woodland walks should match the soil in colour. Dazzling and glassy hues we banish. Recently I learned of a novelty (to me) in "elastic" walks, recommended for flower gardens. Twelve inches of soil is



FIG. 99.—PRIMULA TRAILLI.

removed; 4 inches of packed small stones are placed on the drained foundation, above which 8 inches of peat or moss (sphagnum) is trodden as firmly as possible. The moss is covered with a layer of twice burned engine ashes (grey colour), rolling this till it cakes hard. This is said to form a durable elastic path.

Ash walks may properly be used in the working parts of the kitchen garden. If they run next to walls slope them slightly to the outer edge. To properly enjoy park and outland strolls let us have grass paths or glades. Mark off the ground, dig and level it, making sure there is uniformity in depth and quality. On this sow in April grass seeds, selected; or lay down good turf, brushing fine soil or sand over it, solidifying with a heavy roller. Open side drains (screened) may be on certain soils necessary. Dressings of soot and fine soil aid these grass walks when they deteriorate. Stone laid walks have not come within my notice; will some fellow writer tablet his experience with these? It is well to make walks thoroughly at the outset.

We need not compare ill-made and well-made walks. Evenness, with depth and hardness throughout, is highly necessary.

Weeds ought never to be suffered. Any weed-killer lotion we have tried has been highly efficacious. Salt distributed fairly over the weeds or mosses means destruction. Hand-weeding is preferable to hoeing. With diligent eyes be alert towards repairs, being careful to firm the mended parts. Nothing adds so much to the enjoyment of gardens and pleasure grounds, as do, what we do not always find, but ought to have—namely, feet-comforting walks.—A YOUNG SCOT.



ROSE SHOW FIXTURES FOR 1897.

- June 18th (Friday).—Portsmouth (N.R.S.).
 „ 23rd (Wednesday).—Richmond, Surrey.
 „ 24th (Thursday).—Colchester.
 „ 25th (Friday).—Maidstone.
 „ 26th (Saturday).—Windsor and Dorking.
 „ 29th (Tuesday).—Canterbury, Hereford, Sutton, and Westminster (R.H.S.).
 „ 30th (Wednesday).—Croydon, Ealing, Farnham, and Reading.
 July 1st (Thursday).—Eltham.
 „ 2nd (Friday).—Crystal Palace (N.R.S.).
 „ 6th (Tuesday).—Diss.
 „ 7th (Wednesday).—Glasgow, Hanley,* Hitchin, Reigate, Leeds,† and Tunbridge Wells.
 „ 8th (Thursday).—Bath, Bedford, Farnham, Gloucester, Harrow, Newcastle-on-Tyne,† and Woodbridge.
 „ 10th (Saturday).—Manchester.
 „ 13th (Tuesday).—Wolverhampton.†
 „ 15th (Thursday).—Norwich (N.R.S.) and Helensburgh.
 „ 17th (Saturday).—New Brighton.
 „ 22nd (Thursday).—Halifax and Trentham.
 „ 27th (Tuesday).—Tibshelf.
 „ 28th (Wednesday).—Chester.*
 „ 31st (Saturday).—Liverpool.*

* Shows lasting two days. † Shows lasting three days.

COMMENTS AND IMPRESSIONS—MEDALS AND PRIZES.

THE numerous schedules that now remind us of the approaching shows bring forward a subject that has often been discussed by committees, but never definitely decided—namely, the relative value to exhibitors of medals or cups and money prizes. There is so much to be said on both sides of the question that it is not likely it ever will be settled, and the best way out of the difficulty appears to have been taken by most societies in offering both medals and money in certain classes. I was present, a short time since, at a meeting of a provincial society where the matter was brought forward and vigorously discussed, especially by two of the members, whom we will name respectively as Mr. Cups and Mr. Cash. The former, a very successful and thorough amateur grower and celebrated athlete, stoutly maintained that competition for money prizes was utterly opposed to the true spirit of amateurism. He contended that there should be sufficient interest in, and love for, the Rose to insure abundance of exhibits without the inducement of money. Cups and medals he considered to possess ten times their intrinsic value, and he referred to the pride he felt in the array of such substantial rewards that he was able to show to his friends, and which served as so many mementoes of pleasant days and hard-earned successes. “Mere money prizes,” he concluded, “would never have brought one iota of the satisfaction cups and medals had yielded, and all societies ought to encourage a similar spirit by offering more prizes of that kind rather than pander to the ‘money grabbing’ propensity that proved so detrimental to the true spirit of horticultural competition.”

Mr. Cash, in reply, congratulated his friend upon being in that happy position which enables a man to disregard such trifles as the expenses attendant upon exhibiting. He thought, however, that there were many other equally ardent lovers of the Rose, and equally desirous of extending a general interest in it, but who unfortunately had not such full purses that they could meet demands of this nature without the assistance which he contended societies should always render. The majority of such prizes at local shows rarely provided for little more than the average expenses of the exhibitors, and he stated that having kept an accurate record of all expenses and prizes won in ten years he found after a fairly successful career there was a balance in his favour of 5s. He thought that no man could be accused of “money-grabbing” with such a record, which he thought would correspond to that of many others.

The contention was continued at some length, with the result that the Committee decided to do precisely what others have done—namely, to offer both medals and money prizes in the chief classes, because it is a compromise that appeals to the good sense and experience of the majority. It is undoubtedly a great question how far exhibiting pays even the most successful. Trade growers it is understood look for other than direct returns, although when they have so many thousand plants to cut from it is doubtful if they could sell the flowers to such advantage. To the amateur and gardener, however, it is chiefly a matter of reputation, and the number who turn to exhibiting as a source of gain alone is so small that they need not be reckoned with at all, for they generally find a large share of disappointment if they have not the love of the cause which animates the true gardener, from peers and parsons downwards.

It is often a subject of deep regret to me to hear exhibiting decried, because I know by long experience what an immense stimulus and encouragement it gives to many a worthy man. A valued friend, whom we will call “Lady Cecily,” some time ago said, in the course of conversation on this subject, that she would not allow her gardener to exhibit Roses or anything else, because she thought it would waste a lot of time, and that he would be devoting too much attention to what he wished to show to the neglect of other matters. Happily I was able to point out several instances in the district where this restriction was not imposed, and yet the gardens were admirably kept in every department and at no greater cost. Further, by showing how closely a gardener is wedded to his calling, how few pleasures he has outside his duties, and how small his earnings are compared with the knowledge, experience, and time his occupation demands, I induced her ladyship to allow her gardener the privilege of exhibiting, and the result is explained in the following extract from a recent letter: “I am quite delighted with the improvements Brown has carried out in the gardens this year, and we are becoming greatly interested in his exploits at the shows; he was very successful last year, and the Roses are very promising for the present season. I am sure you were right about the exhibiting, for Brown has been much more energetic since I allowed him to measure his strength against our neighbours, and I am thoroughly satisfied in every way.”

The medal question brought to my mind an episode concerning a beautiful Rose which may be said to be peculiarly appropriate to the present year—i.e., Her Majesty, which ought to be shown in its best form for the sake of its name. I was walking through the exhibition at South Kensington when the late Mr. Bennett of “Pedigree Rose” fame came up with a particularly brilliant expression on his face. “You look happy, Mr. Bennett,” said I. “Is the world using you well?” “Happy, my dear sir,” said he in an excited tone, “I have never been so happy in all my life. I have just been awarded a gold medal for Her Majesty. Think of that—a gold medal! Why, I would sooner have that than a present of £100.” How true that was anyone who knew Mr. Bennett will realise, for he possessed an enthusiasm which carried him outside all petty consideration of £ s. d.

By the way, what an interesting exhibit could be made of the Roses which have been brought out during the Queen’s long reign, though I imagine it would be difficult to find many of those raised in the earlier years. I have a copy of the “Rose Fanciers’ Manual,” by Mrs. Gore, published in 1838, the year after the Queen’s accession to the throne, and it is surprising how few of the varieties therein described or mentioned (over 1600) are now known to cultivators. Gloria Mundi and York-and-Lancaster are the two most notable of the older varieties, while Lamarque has a place amongst the Noisette Roses, of which no less than ninety-three are described, as this type was even then in great favour with the French growers. It is interesting to note what Mrs. Gore says about the collection of Roses then of note. She says the finest are those of the Horticultural Society formed by Professor Lindley, of the Duke of Devonshire formed by Mr. Paxton. Mr. Sabine, whose valuable treatises on the Rose are well known, formed some years ago a collection at North Mumps, and one of the earliest and most interesting made in England was that of Charles James Fox and St. Anne’s Hill. Referring also to the Rose nurseries—Messrs. Rivers of Sawbridgeworth; Messrs. Loddiges of Hackney, “who cultivated 2500 varieties;” Messrs. Lee & Kennedy, and Messrs. Henderson of Kilburn. In noting the popularity of the Rose in France, it is said that one grower “produces annually from slips in a small forcing house 50,000 plants of five varieties.” Will any of our British firms surpass that in the present Diamond Jubilee year?—A MIDLAND ROSARIAN.

HARDY FLOWER NOTES.

WHEN spring was with us we thought there could be no more attractive time in the garden, so full was it of floral charms. Yet now that Queen Summer reigns, we think that she, too, has beauties unsurpassed. The Tulips and the Narcissi have gone, but in lieu of the bright colours of the former we have others brighter still. Great *Pæonia* flowers of imposing beauty vie in brilliancy with the fluttering Poppies, which, for a short space, unfold their fragile, crinkled petals to please us with their beauty ere they fall to the earth or are carried off by the wind. Roses, too, have come as if to show their superior beauty in comparison with the blooms, magnificent as they are, of the shrubs—the *Rhododendrons*—which are in name likened to these royal summer flowers. *Pyrethrums* decorate beds and borders with their tasselled flowers, while the *Columbines* are delightful in their forms and colours.

The older *Aquilegias* still hold their place in our favour, and are much loved and admired despite the exquisite beauty of the new hybrids. They are ubiquitous here. They nod from the tops of rockeries, swing to and fro to the wind in the borders, ornament the margin of the pool or encroach upon the gravel walks and dispute ownership with the passer-by. Like the Welsh or Wordsworth's Poppies, and others of the same family, they have become weeds in this garden, but weeds so beautiful that they cost us many a pang when they have to be ejected ignominiously from some spot reserved for other flowers. These *Columbines* are of all colours and hues; blue and brown, white, and almost black-purple, pink, and yellow. One would need a colour chart, and even with its use would find the whole list of colours and shades insufficient to describe sufficiently the hues of this old and favourite flower. Then the forms are, if not so varied, at least very numerous. Long spurs, short spurs, no spurs; single flowers, semi-double flowers, double flowers, with various differences of form, all occur. Who that has ever grown this flower could use with pleasure the words of Skelton, and say, "That thankless flower grows not in my garden?"

It is pleasant to find the old forms still appreciated by visitors to the garden, and to see them so delightfully spoken of by "The Missus" in her sketch of her northern garden in a recent issue of the *Journal*. The new hybrids grow side by side with them here, and by-and-by we may see some strange results of this association. Possibly these may be to some extent a retrograde step, undoing in some way the work of the Rev. C. Wolley-Dod, whose exquisite strain of hybrid forms is the one I have; but there will still be enough of distinct beauty among all to give the flower-lover his reward for the little pains the *Aquilegia* requires to induce it to grow.

On one rockery the Starry Daisy Bush—*Olearia* or *Eurybia stellulata*—is a mass of bloom. This counterpart of the "modest crimson-tipped flower" of Burns, from the Antipodes, instead of rising timidly from the turf like our native wilding, grows on a bush, and even near at hand is as closely set with flower as some lawns which afar off look like sheets of snow. The "crimson tip" is absent, but so Daisy-like are the blooms that the name of Daisy Bush is fitly given. It seems strange that this species is hardy here when in many places, even farther south, it cannot stand the winter.

June is a time of Lupines, too, and a yellow variety of the Tree Lupine (*L. arboreus*) is, as I write, loaded with its pretty, honey-scented spikes. What a pity it is that these Tree Lupines are not long-lived, as their effect is so fine that they are welcome everywhere. The herbaceous species and varieties are pretty too, while the annuals give many a border a needful variety of form and colour. I have not room to grow many Lupines, but would fain say a word in favour of a little more attention being paid to some little grown species seldom seen except in botanic gardens. Yet there are few to equal the forms of the best known of the herbaceous species (*L. polyphyllus*), with their long and tapering spikes ranging in colour from deep blue to white, and the pretty bicolor variety with its blue and white flowers.

A pretty *Anemone* has passed away for the year, but one would be sorry were it to pass unnoticed here. This is *A. balkana*, whose round feathery heads of seed still look well, and which grows on the level at the foot of one of the rockeries. On my return, after a few days' absence, the Balkan *Anemone* had come into flower, and at first sight its blooms were taken to be those of a glorified white Iceland Poppy, or those of a very miniature single white *Pæony*. Like those of the Poppy, they were crinkled, and far surpassed in purity and in texture the fine crinkled papers so often used. They were raised on stems about 14 inches high, and were much admired while they lasted, which, truth to tell, was too few days to make us weary of their loveliness. As the sepals fell we thought, as we often think when looking at some flowers, of the

words, "Whom the gods love die young," and bade a long farewell to the beauty of this sister of the Windflower of our woods.

More fleeting still are the flowers of the *Cistuses* and *Helianthemums*, the Rock and Sun Roses. There are few of the former to be depended upon in this climate of ours for any length of time, but the dwarfer, but no less beautiful, Sun Roses last for years on a moderately dry bank, and when June comes round open their fragile flowers to the morning sun. Of all our flowers there are few more fleeting in their beauty, so many cast their petals early in the day, and ere night the little bush, which the sunlight had beguiled into adorning itself with a garment of ephemeral beauty is unadorned once more, and so quiet and homely looking that the passer hardly deigns to glance at it. It will be found that these Sun Roses like a little more moisture than they often receive in the intensely hot and dry positions in which they are sometimes placed. Where the soil is not excessively dry the blooms are not so fugacious, and will at times last until the evening.

The perennial Peas are favourites with many, and are, as a rule, very decorative, either in the garden or as cut flowers. The several forms of *Lathyrus latifolius* show much variety of shade, none being of more value as a cut flower than the ivory like blooms of *L. l. albus*. *L. grandiflorus* is a general favourite, and, like the foregoing, is very beautiful, clambering over a hedge or trellis. I have been trying to secure some of the rarer perennial *Lathyri*, with, unfortunately, only partial success. This year I have first had the pleasure of enjoying the flowers of *L. pubescens*, which, rather unexpectedly, has survived the cold and wet of the past winter. For this plant I was indebted to Mr. W. E. Gumbleton, who has, one is sorry to hear, been unsuccessful in keeping it.

The plant was raised from seed sent from Uruguay to Mr. Gumbleton, and has been grown on a trellis against the gable of an outhouse in the garden. It appears to be of semi-shrubby habit, the flowering branches not being produced directly from the underground stem, but from the old stem above the surface. The flowers are entirely distinct in colour from the other perennial Peas generally found in gardens, and are of a fine lavender colour, the lower part of the flower being light, and the upper, or standards, darker. There are eight or nine blooms on each raceme, and these, although not so large as in some species, are very effective and pleasing in colour. The leaves and stems of this Pea are distinctly pubescent, so that the specific name is very appropriate. *L. pubescens* does not appear to be of very vigorous growth, but one must hope that it may become thoroughly established here.

Other flowers are brilliant or chastely beautiful in border or in the rock garden. By the pool the Buck or Bog Bean, *Menyanthes trifoliata*, is pleasing with its fringed, sweet-scented blossoms. On its margin the Sikkim Cowslip, *Primula sikkimensis*, hangs its pretty yellow flowers from the top of the tall stems. The Marsh Marigolds are nearly over, but the Irises are in bloom, and the picturesque-looking *Rodgersia podophylla* is also in flower. Saxifrages are still blooming away on the rockeries, their pretty flowers making the bright blooms of some of the *Dianthi*, such as *D. neglectus* and *D. alpinus*, appear even brighter than they are. *Lychnises* are bright too, and among the yellow flowers none please more than *Onosma taurica*, the Golden Drop. The creamy white variety of *Thalictrum aquilegifolium* looks graceful and attractive beside a great scarlet Eastern Poppy—a seedling I have named "Guardman" from its fine colour and tall erect habit. There are many others beautiful in flower, in foliage, or in both, which seek to claim our admiration as we pass them by. Lost in the garden's pleasures, we must not forget that it has its work too, and that, pleasant as it is to tell of its beauties, the pen must be relinquished for a time while the wants of the flowers are attended to. So we bid the reader *au revoir*.—S. ARNOTT.

PALMS IN RUSSIA.—In the Winter Palace at St. Petersburg is the Nicholas Salon, which is decorated with seventy-two Palms, averaging from 25 to 30 feet high. These stand in six rows of twelve plants each, and around each plant-tub is constructed a table at which ten persons can be comfortably seated at dinner. The Palms stand so far apart that their spreading tops do not touch, and the outline of each can be seen to advantage. The skill of the Court gardener is shown in the fact that these tubs are only 30 inches in diameter, and they cannot be enlarged, owing to the limited size of the table. As the Palms remain in the palace from January until May, they lose seven or eight leaves every year, which must be replaced by as many new ones before the following January. To bring about this growth the plants are turned out of the tubs as soon as they are taken from the palace, the roots are severely shortened with an axe, and the ball is re-tubbed in turfy loam, fertilised with bonemeal, and the Palms are then placed on a warm bed in the Palm house. Here they remain until their new leaves are developed, and at the New Year they are transported to the palace, well packed in thick coverlets as they are carried through a temperature which sometimes falls to 40° below zero.—("Garden and Forest.")

ECCENTRICITIES OF PLANTS.

THERE are some curious things that come across anyone who takes a pleasure in growing plants of an herbaceous character for which they cannot always find explanations, and in which they seem to depart from the normal condition of their kind. I have asked several persons about the cases that have come under my own observation, but they still remain a puzzle.

One of these plants is *Ornithogalum arabicum*. I have more than once found the bulbs lying dormant for a season and then starting up into growth; but this year I have had a still more remarkable experience of its eccentricity. Three years ago I potted some bulbs of it in 32's, four in a pot, but for two years they made not the slightest attempt to move. Nothing has been done to them; they have not been potted or top-dressed, or interfered with in any way. They have been in a back part of my greenhouse, and this year they are all blooming grandly; every bulb has flowered, and the number of blooms on a spike or truss varies from eleven to fourteen. They are a large size, and in every way perfect. We are so often told that when a plant has remained a long time in a pot it exhausts the soil. I should like very much to know when and how these bulbs accumulated strength to send up such strong trusses of blooms, and when were these formed in the bulbs. I am no botanist, and probably will be set down as an ignoramus, which I honestly confess that I am; yet, withal, I should be glad if anyone would solve this riddle for me.

Another plant which has been a considerable puzzle to me is one that I have of that grand showy biennial *Verbascum olympicum*. As far as one of my plants is concerned it is entirely false to its character. I have had it now for nine years, and this year it is throwing up some grand spikes of blooms. In one respect it preserves its character, for it flowers only every second year, although, as I have said, the plant has a continuous growth. It seems to me that the shoot comes up from the base of the plant, and acts as if it were a seedling, not flowering the first year, but preserving its strength for the following one. I have seen many plants of it elsewhere, but they have always been true to their character of being biennial, and what has led this one plant to adopt this abnormal course I am utterly at a loss to conceive.

I have more than once alluded to the disappointment that that pretty little *Calla*, "Little Gem," has caused me. I had it six or seven years ago, when it flowered, but I have never been able to get it to flower again; it grew well enough, but refused to flower. Last autumn, however, I thought I would adopt a new course of proceeding with it. I dried the plant off completely, which I am in the habit of doing with many of my bulbs, and on repotting I took away all the slender growths, and only potted the stronger ones. This plan was entirely successful, and I have had some nice flowers of it this spring. This was the more gratifying to me, because when I wrote to the firm who kindly supplied me with the plant I told them I could not get it to flower; they told me they were surprised at it, for they had no difficulty, and that they would send me a plant to show how free it was. This was very kind of them, but, alas! when the plant arrived it was not "Little Gem," but a form that I have had from another firm, and which, I believe, is called "Compacta Nana," which is midway between Little Gem and the ordinary form. Of course, I thought then that all Little Gems would in process of time alter into this intermediate form, and I was, therefore, the more glad to find that I was mistaken, and that Little Gem remains Little Gem still. The beautiful yellow forms of the common *Calla Pentlandi* and *Elliotiana* are, I fear, beyond me. I had a plant of the former, but learned too late that it required more heat than I can give it, and consequently it rotted away, and I have been obliged to abandon the attempt to cultivate it.—D., Deal.

THE INFLUENCE OF MICROBIC LIFE IN THE NUTRITION OF PLANTS.

AMONG the results of the evolution of the microscope and the perfecting its higher powers during the past quarter of a century, the most interesting and far reaching have been the discovery and investigation of the infinitely minute vegetable organisms known as microbes, and bacillus, and bacterium, which are found to play such an important part in the economy of Nature, and the knowledge of the operations of which have solved for us so many of its problems.

Viewed broadly, these infinitesimal bodies are of two kinds—those which grow in the presence of oxygen, and those which grow in the absence of oxygen. The former die if oxygen be withheld, the latter die if oxygen be applied. Speaking generally, the influence of the former is beneficent, the influence of the latter is maleficent.

It is not my intention to glance at, much less to review, the information we at present possess about microbic life, but I will refer to a subject which concerns us all no less seriously than that of which I have just been speaking—the presence of maleficent microbes in water. The great aim of the community is to have water supplied for drinking of

unimpeachable purity. I wish the community would insist upon their aim being carried out, and to this end the water is caught as it issues from the rock, and deep wells are sunk in the rock, from which the water is led to every house. So pure is this water in most instances that it contains only ten micro-organisms to the cubic centimetre. River water, on the other hand, teems with microbic life, there being often hundreds of thousands of beneficent micro-organisms to the cubic centimetre.

Doubtless maleficent microbes are constantly passing into river water, rendering it dangerous to drink. But if by chance maleficent micro-organisms should find access to pure supplies of drinking water the consequences are far more serious than is generally supposed, and the risk of drinking it is even greater than the risk of drinking from an ordinary river in bright sunny weather, when the life of beneficent organisms is most active.

If, for example, the microbe of enteric fever pass into pure deep well water it will live for five weeks, but if it pass into river water it will live only five days. The reason is this: the substances produced by the growth of beneficent organisms, which are so abundant in river water, destroy the maleficent organisms, whereas in pure deep well water the beneficent organisms are so few they do not produce sufficient microbic poison to interfere with the growth of the maleficent microbes.

Perhaps no more forcible illustration of the practical application of the knowledge obtained in the discovery of the existence of these minute organisms could be found than in the modern treatment of wounds. Before this time wounds healed slowly, and the healing process was associated with the formation of pus, or "matter," as it is popularly called. Poisons passed into the blood from these wounds, not infrequently giving rise to what is known as septic fever, and which often caused the death of the patient. It was discovered that the process of formation of matter—"suppuration" as it is called—was associated with the presence of large numbers of minute organisms which, it was found, were destroyed by certain substances, such as carbolic acid. If these were excluded pus was not formed, and the healing process was not interfered with. And now operations are done with comparative impunity which would not have been attempted twenty-five years ago, and other operations which then resulted in a mortality of 75 per cent. are now done with a mortality of 3 or 4 per cent. only.

Although the existence of these minute forms of life in the atmosphere and the soil was known, and that some soils teemed with them, and while their relation to animal life was being rapidly marked out, their influence upon the life of plants was apparently little thought of or even suspected until recently, and certainly no practical application of any discovery which investigation had made was arrived at. As yet comparatively little is known; but already the application of the knowledge gained is so valuable that we may hope for such further development as may advance materially both horticulture and agriculture.

The chemical analysis of plants shows they are made up of certain elements—oxygen, hydrogen, nitrogen, and carbon, together with lime, potash, phosphorus, and other mineral substances in the form of salts, and that these elements are in proportions which vary with the kind of plant. Now where do these substances come from? They must come obviously from the atmosphere or the soil in which the plants grow. The atmosphere contains oxygen and nitrogen as its principal constituents, in the proportion of four-fifths nitrogen and one-fifth oxygen, together with hydrogen in the form of water (which is a compound of oxygen and hydrogen), carbon in the form of carbonic acid (which is a compound of oxygen and carbon), and ammonia (which is a compound of nitrogen and hydrogen). Plants breathe through their leaves, throwing off water and carbonic acid gas; but during bright sunshine the leaves absorb carbonic acid gas, and their green colouring matter has the power of splitting this compound into its elements, retaining the carbon and giving off the oxygen.

The other constituents of the plant must be derived from the soil. If we grow crops of the same plant season after season in the same soil they presently become very poor, but by growing crops of different plants in rotation we are able to secure good crops. In order to maintain vigorous growth, and particularly in certain soils, and especially if we have to repeat frequently the same kind of plant, we manure heavily—that is to say, we enrich the soil with the elements which constitute the plant. Among these elements is nitrogen, and we apply it often in the form of nitrate of soda and sulphide of ammonium. But it has been found that upon analysing plants and the soil in which they are grown, they contain more nitrogen than could have been derived from the soil, and particularly in certain soils, and this is especially the case with papilionaceous or leguminous plants which produce a pod or legume as their fruit. This excess of nitrogen can only have come from the atmosphere, as there is no other possible source of it.

When plants are in active growth the microbes in the soil about their roots, and within them, are also in active growth. Without their aid plants could not live, for they prepare the food on which they live. In a drachm—a little old fashioned teaspoonful—of soil there are from 1000 to 75,000,000 of micro-organisms, which are found in greatest abundance within 3 inches of the surface, and are not present below 2 feet of it. It is by their aid the green colouring matter splits up the carbonic acid, and renders the carbon fit to be appropriated for the nutrition of the plant. It is they which abstract the nitrogen of the atmosphere, and render it fit for plant food, thus accounting for the excess of nitrogen. How this is done is not yet known, but it may be that hydrogen, which is particularly active in forming combination in its free state, is set free, and combining with nitrogen, forms ammonia, which is acted upon by the microbe.

The tubercles on the roots of leguminous plants are formed by their agency. They seem to require the carbon of the plant for growth, and return it nitrogen for its growth. When there is abundant nitrogen in the soil these tubercles are not formed, but when it is absent they become the habitat of the microbes which produce it. After a leguminous crop the soil is fit to grow a cereal crop, which it may not have been previously, a fact of which it would appear the ancients were cognisant. By the agency of nitrogen-forming microbes—and there would appear to be a different form of nitrogen-producing microbe for each genus of the Leguminosæ—nitrogen is stored up in the soil during the growth of the leguminous crop.

It may be that each genus of plants of other natural orders have their own particular attendant microbes preparing out of raw material the aliment they require; and in time many of these may be separated and cultivated, and applied to their particular functions with as great certainty as the acidifying and flavour-producing microbes are applied in the making of butter. When that time comes the economic value of the discovery must be enormous. Already some of the nitrogen-forming microbes have been isolated and cultivated in large quantities, and are now produced in a marketable form. On the Continent land which was infertile has yielded large crops after it had been sown with this nitrogen-producing microbe, and garden soils in which certain vegetables and flowering plants refused to grow are now luxuriant with them.

Judging by this success it would seem not unreasonable to anticipate the time when the life history of the microbes which influence the growth of plants will be as well known as those which affect milk, and that the practical application of the knowledge gained will be no less successful.—(Abstract of paper read by DR. GROVES at a meeting of the Isle of Wight Horticultural Association)

OUR BOTANICAL GEOGRAPHY.

IN studying the botanical geography of the British Isles, the leading important fact we find established is that they do not grow a single plant that is peculiar to them which cannot be found also in continental Europe. Another is that the plants found here do not all come from the same regions. In enumerating the various vegetable emigrations which, according to leading observers, have successfully colonised our islands, we may cite first the Asturian type, which, owing to the mildness of its winters, has long been established in Ireland. These Asturian specimens are the last representatives of a colony from the North of Spain.

The South-West of England and the South-East of Ireland exhibit a vegetation similar to that of Brittany and Normandy, which is termed the Armorican. Many of these are found along the western coasts of France till the increasing rigour of the climate north arrests their further progress. These plants, which are to be found with us mainly in the Devon and Cornwall districts on the coasts, have crossed to Ireland and have become naturalised in Cork and Waterford. The mountains of Wales, Cumberland, and Scotland present a peculiar vegetation entirely different from that of our plains. Analogous to that of Switzerland, it resembles even more that of Iceland and Greenland. It is termed the Boreal type.

What is termed the Germanic is the fundamental type of that of England. Originating in the north of Germany and France, it has in the course of ages become so predominant as to be called, but really this is a misnomer, the British type. Many plants found in England have never crossed St. George's Channel into Ireland. The marine plants of our isles follow the same laws of distribution as those governing the flora. A sea admittedly once covered most of the south of Europe and the north of Africa, for this is proved by the numerous identical shells found at numberless points from Greece to France. It follows that the upheaval of this ocean bed, which constitutes the last tertiary deposits, gave rise to a vast continent, comprising Spain, Ireland, the Azores, and part of Africa. This is from where the Armorican type found its way. The submersion of this continent was followed by a long period during which a lower temperature prevailed, and then it was that the migration of Arctic plants took place.

The oldest of these floras now comprising our vegetation would seem to be undoubtedly that of the mountains of the West of Ireland. The distribution of the second flora, next in point of probable date, depended on the extension of a barrier, the traces of which are still in evidence from the West of France to the South-East of England, and thence to Ireland. The third flora depended on the connection of the coasts of France and England towards the eastern part of the Channel.

Of the former existence of this union no one can entertain a doubt. The distribution of the fourth or Alpine flora of Scotland and Wales, was, it would appear, effected during the glacial period, when our mountain summits were low islands extending to Norway through a glacial sea, and clothed with an arctic vegetation, which in the gradual upheaval of those islands, and consequent change of climate, became limited to the summits of the newly formed and still existing mountains. The distribution of the fifth, or Germanic flora, depended upon the upheaval of the bed of the glacial sea, and the consequent connection of England with Ireland, and also with Germany, by great plains, the fragments of which are still existent, and upon which many now extinct great animals lived. The breaking up, or rather submergence, of the first barrier led to the destruction of the second, and then that of the second caused that of the third; but the well-marked epoch of migration of the German flora clearly indicates the subsequent formation of the Straits of Dover of the Irish Sea as now existing.—WM. NORMAN BROWN.



OUR NEXT ISSUE.—As intimated last week, the next issue of the *Journal of Horticulture*, June 24th, will be devoted, not to descriptions of the Queen's Gardens only, but to methods of procedure in them—a blend, it is hoped, of matter of interest and usefulness, for almost every feature in gardening, ornamental and serviceable, will be represented. This will be supplemented by Mr. D'Ombrain's review of *Horticulture*, and the changes brought about as he remembers them during the past sixty years. Though the number will be considerably enlarged, its whole space will be occupied in "Honour of the Queen," and neither communications in hand, or which may be received during the ensuing week, nor reports of shows, can possibly appear till the issue succeeding. We have reason to believe that the change from ordinary routine during something like a holiday week, consequent on the passing of a great historical event, will be equally acceptable to amateurs and gardeners.

—EVENTS OF THE WEEK.—Rose shows have now started in real earnest, and the list of fixtures of which we have been informed will be found on page 524. On Wednesday, the 23rd inst., the Victorian Era Flower Show will be held at the Crystal Palace, while the Old Deer Park, Richmond, will be *en fête* with the Richmond Horticultural Society's Exhibition.

—WEATHER IN LONDON.—The weather in the metropolis during several days of the past week and the early days of this was of a quite tropical character. Thursday and Friday were fine, and Saturday was magnificent, the sun shining with great power. The thermometer reached 77° in the shade, this being exceeded on Sunday by 7°, 84° in the shade being the maximum. Monday was duller and a trifle cooler, Tuesday again being bright and warm, but more pleasant, owing to breezes that prevailed throughout the day. Yesterday (Wednesday) was cooler, and rain fell at intervals.

—WEATHER IN THE NORTH.—The weather for the past fortnight has been extremely variable. Saturday, the 5th inst., was the warmest day of the season, the thermometer showing 79° in the shade. On the morning of the 8th Potatoes and tender foliage were in some districts blackened by a sharp frost. Thunder and very heavy rains have latterly been prevalent, and on Tuesday morning the air was distinctly cold.—B. D., S. Perthshire.

—MANCHESTER SHOW.—Our reporter writes:—"By an oversight I omitted to mention that the medals, awarded to Messrs. Sander & Co., H. Low & Co. (both having splendid exhibits), and Charlesworths at the late Show were all large and of equal value. May I also bear testimony to the choice stand of hybrid *Cypripediums* staged by Mr. Chapman, gardener to R. I. Measures, Esq., Camberwell, for several of which Mr. Chapman had the honour of receiving certificates. I should also like to say how much the success of the Exhibition was due to their courteous attention to all and interest taken in every possible way by Mr. Weathers, the new Curator, and his assistant Mr. Paul."

—EXHIBITION AT GHENT.—The programme of the fourteenth International Horticultural Exhibition of the Société Royal d'Agriculture et de Botanique de Gand has reached us. From this it appears the show will be the 163rd that has been held under the auspices of this Society, and the dates fixed are from the 16th to the 24th of April, 1898. The schedule forms a book of nearly 100 pages, and comprises twenty-eight sections, amongst which are divided 716 classes. The President is Count O. de Kerchove de Denterghem, and the Secretary Mons. E. Fierens, of whom we gave a photograph a short time back. We hope to make further reference to this show at a future date.

—THE CRYSTAL PALACE VICTORIAN ERA FLOWER SHOW.—Judging by the schedule, this show, to be opened on June 23rd, should be both interesting and imposing. It is to be essentially an exhibition of groups—of Begonias, Caladiums, Cannas, Coleuses, Ferns, Coniferae, fine-foliaged plants, Gloxinias, Alpines, hardy herbaceous plants, Orchids, Palms, Pelargoniums, and Roses, the prizes ranging from £20 downwards. In addition, Crystal Palace commemorative medals are provided for the best group of miscellaneous plants arranged for effect in a space of 300 square feet; also for the best group of plants introduced during her Majesty's reign, arranged in a space not exceeding 500 square feet. Money prizes are also provided in these classes. There are only twenty-six classes in the schedule, but they are of a nature to afford scope for a grand exhibition, worthy of the occasion and of the Palace. There must be no delay in sending entries to Mr. G. Caselton, garden superintendent, and a request in the schedule should not be ignored—namely, that those who have entered, and find that they cannot exhibit, send a telegram, or communicate to that effect, to Mr. Caselton, the day before the show. This will be most helpful to the manager, and add materially to the effect of the exhibition.

— **SEATS TO VIEW THE JUBILEE PROCESSION.**—A reference to our advertisement pages will convey to readers an idea of the excellent seats that are to let to view the Jubilee Procession on Tuesday next. Applications should be made to 171, Fleet Street, E.C.

— **DEATH OF MR. C. R. HUMBERT.**—The death occurred on Thursday, June 3rd, at his residence in Watford, of Mr. Charles R. Humbert, head of the firm of Messrs. Humbert, Son & Flint, auctioneers, surveyors, and valuers, of Watford and Serle Street, London, W.C. Mr. Humbert was in his forty-third year. He was honorary secretary of several local organisations having for their object the promotion of the interest of agriculture and horticulture.

— **HOW TO GROW BEGONIAS.**—Such is the title of a book that has just been published at 2s. by Messrs. Sampson, Low, Marston & Co., from the pen of Mr. G. A. Farini, F.R.H.S., the well-known grower and exhibitor of these mostly popular flowers. The book, which is well printed on good paper, contains upwards of 130 pages, amongst which are distributed a few illustrations elucidatory of the text. Eighty pages are devoted to the cultivation of the plant, and the style in which it is written will allow the greatest tyro to grasp the meaning. The remainder of the book comprises a catalogue of some of the best varieties at present in cultivation.

— **BEDFORD SHOW.**—In the Corn Exchange, Bedford, on Thursday, July 8th, the Bedfordshire Horticultural Improvement Association will hold its Show. The schedule comprises six classes only—namely, for a group of miscellaneous plants; for twenty-four Roses, not more than two of one variety; for twelve Tea Roses, distinct, three blooms of each; for twenty-four bunches of hardy herbaceous or bulbous plants, distinct; for the most tastefully arranged table decoration, each of these being open to all; and another for members of the Society for twelve cut Roses, not more than two blooms of any one variety. We hope the entries will be numerous and the quality high, in order to make up for the somewhat striking scarcity of classes. The Hon. Secretary is Mr. E. Laxton, 63A, High Street, Bedford.

— **NON-PRODUCTIVE STRAWBERRY PLANTS.**—In April of 1896 I planted out a bed of President Strawberry plants (runners). These grew amazingly in the fresh piece of ground prepared for them, and the plants are now enormous for their age, but, alas! not one in ten has a flower on it. On one side of them I planted seven rows of Royal Sovereign, and there is scarcely a plant which is not carrying a good crop of fruit. On the other side of the Presidents I planted a number of Vicomtesse H. de Thury from side crowns of old bearing plants; every one of these is carrying a full crop. Next these were planted a bed of British Queen, also from side crowns of fruiting plants; these also are covered with flowers and immature fruit. When I first began growing British Queen Strawberries I planted runners in the autumn, and was troubled by having a number of unfruitful plants; now I never grow them from runners, but always from side crowns taken from fruitful plants in April just when they are emitting fresh roots. This plan is far better than planting runners, unless you have early prepared runners, and it has the merit of having all fruitful plants instead of a proportion of non-fruiting ones.—F. BOYES, *Beverley*.

— **JUBILEE OF A GREAT FIRM.**—"Gishurst" and "Gishurstine" are terms well known in the gardening world, and both of them as gardeners' friends, the first as forming a long-proved and excellent wash for plants and trees in destroying insects, the second as a waterproofing and preservative of boots. It may not be so well known that these are small items in the great business of Price's Patent Candle Company, the head-quarters of which are at Battersea. We have received a beautifully printed and illustrated Jubilee memorial of the firm, and find that it was formed by Mr. William Wilson in 1847, who was the first Chairman; while his sons, Mr. James P. Wilson and Mr. George F. Wilson, F.R.S., the ardent horticulturist, Managing Directors, the last named alone surviving, and a valuable Director still. It was he, no doubt, who invented the two articles named, and we also find that the world is indebted to him not only for the production and subsequent cheapening of the superior wax composite candles, now universally used, but for that most valuable medical and commercial necessity—pure glycerine. It seems that a stimulus was given to the improvement in candles by the marriage of the Queen, when the demand was so great for placing them in windows for general illumination—a candle to every pane, having a remarkable effect. That custom has been long superseded; but it may not be generally known that "night-lights" are extensively used for the small pendant-coloured glasses, used in present illuminations. Of these lights enormous numbers have recently been supplied by "Price's," one order alone being for 1½ million in view of her Majesty's Diamond Jubilee. Two thousand persons are employed by Mr. Wilson's firm, and nearly 1800 were recently taken to the Crystal Palace in special trains, and entertained at a bountiful repast, each adult worker being further presented with a new crown piece and the juniors with half a crown. A pension fund is also maintained by the firm, as provision for workers in their old age. The firm is increasing in wealth and prosperity under the management of Mr. J. Calderwood, and as will be seen the workers who have helped to make it so have not been forgotten, the kind consideration shown in many ways to the employes having being instituted by Messrs. William, James, and George F. Wilson.

— **CROYDON SHOW.**—The Croydon Society has been successful in obtaining by special subscriptions a very handsome new cup to replace the last, which was won outright in 1896 by the Rev. J. Pemberton, after being in competition for nine years.

— **WOLVERHAMPTON HORTICULTURAL CLUB.**—The monthly meeting was held at the Star and Garter Hotel, on June 1st, when Mr. Baillie, of Messrs. Dickson's, Chester, gave a most able and instructive lecture upon "Herbaceous Plants and their Cultivation," a subject with which the lecturer was well able to deal. Unfortunately the lecturer was not able to remain to hear the discussion which followed.

— **MR. R. INGLIS.**—We learn that our old correspondent, Mr. R. Inglis, has relinquished the charge of General Leigh Pemberton's gardens at Abbots Leigh, Hayward's Heath. Mr. Inglis is a gardener of great experience and high respectability. Equally competent both as a cultivator and in landscape work, he would take special interest in laying out a new garden or renovating an old one. His address is Aberdeen Cottage, New England Road, Hayward's Heath, Sussex.

— **REIGATE SHOW.**—The eleventh annual exhibition of the Borough of Reigate Cottage Garden and Horticultural Society will be held in the grounds of the Priory, Reigate, on Wednesday, July 7th. The schedule is a bulky one divided into several sections, and comprising 180 classes in all. Roses have been a feature in past years, and it is to be hoped that they, as well as fruits, vegetables, plants, and flowers, will again be well shown. The Honorary Secretary is Mr. M. Puntton, St. Mark's School, Reigate, to whom all communications must be addressed.

— **SHEFFIELD CHRYSANTHEMUM SOCIETY.**—The June meeting was held on Wednesday, the 9th inst., in the Society's room in the Museum, Orchard Street. The essay was "Plants for Grouping, and Grouping for Effect." The essayist was Mr. M. H. Willford, a successful exhibitor of groups of plants at our Sheffield exhibitions, who enumerated a long list of plants which he considered most suitable for the purpose, and gave excellent instructions for arranging plants to give the best effect when grouped together. The essay was a very instructing one, and ably treated the subject. After a short discussion a vote of thanks to Mr. Willford was passed. The monthly exhibits were Gloxinias for professional members. Some very good plants were staged. Mr. C. Scott was awarded first prize, Mr. G. Smith second, and Mr. C. Shorten third. The amateur exhibits, pot plants in bloom, were disappointing, as only one exhibit was staged, by Mr. R. Gascoign, who had thus no difficulty in scoring. Mr. John Haigh presided over the meeting.

— **MARKET GARDENERS' COMPENSATION IN SCOTLAND.**—At a recent meeting of the Standing Committee on Trade, the Market Gardeners' Compensation (Scotland) Bill was under consideration. The object of the Bill is to extend to holdings which are used as market gardens the provisions of the Agricultural Holdings (Scotland) Act, 1883, as to tenants' improvements. The chief amendment, in the form of a new clause, moved by the Lord Advocate, was to the following effect:—"Any compensation payable under this Act shall, as regards land belonging to her Majesty the Queen, her heirs and successors, in right of the Crown, be paid in the same manner and out of the same funds as if it were payable in respect of an improvement mentioned in the first part of the first schedule to the principal Act, except that compensation for planting Strawberry plants and Rhubarb and other vegetable crops shall be paid in the same manner and out of the same funds as if it were payable in respect of an improvement mentioned in the third part of the said schedule." With this amendment, says a contemporary, the Bill was ordered to be reported to the House of Commons.

— **THE RAINS.**—Immense benefit has resulted to all descriptions of crops from the recent rains, although in some districts heavy hail and tremendous downpours on Whit Sunday did considerable harm. The way in which Strawberry plants have recovered from the cold winds and sharp frosts of last month is remarkable, and now there is every prospect of being an unusually heavy crop. We may expect to see the fruits cheap enough in the Jubilee week. All trees and bushes have had a good cleansing, and now making strong growths and good leafage are getting quite out of harm's way. As generally the fruit crop is very light, it is not desirable that wood growth should be too luxuriant, but we must accept what is provided. Amongst all vegetables the effects of the rains are wonderfully apparent. Peas have not only made very strong growth, but are blooming luxuriantly. We ought to see a splendid crop of fine, well-filled pods. So far even the common field earlies are better filled than I have seen them for some years. As to the Marrow section, they will soon be in, and then Peas will be good and very cheap. Potatoes, no doubt, in many cases through tops having been cut with frost, came very irregularly, but they have greatly recovered, and are now putting on strong growth. As much may be said of Beans, the Broads, especially, being very clean and good. There seems little doubt now but that, in spite of the ungenerous nature of the weather last month, we shall have a fine produce year, fruit unfortunately excepted. Hay should be wonderfully abundant, and in many directions mowing of heavy swathes has already begun. The Jubilee year should be a plentiful one.—A. D.

— MAY WEATHER AT HODSOCK PRIORY, WORKSOP.—Mean temperature, 50.2°. Maximum in the screen, 70.5°; minimum in the screen, 30.3°. Minimum on the grass, 20.1°. Frosts in the shade three, on grass fifteen. Sunshine, 233 hours, or 48 per cent. of the possible duration. Rainfall, 0.88 inch. Rain fell on ten days. A bright and dry month, with cold nights and northerly winds. Vegetation is backward.—J. MALLENDER.

— THE WEATHER LAST MONTH.—May was very changeable, with temperature and rainfall below the average and more sunshine than usual. The wind was in a northerly direction eighteen days. Total rainfall 1.09 inch, which is 1.27 inch below the average for the month. This fell on eleven days, the greatest daily fall being 0.23 inch on the 31st. Barometer (corrected and reduced), highest reading 30.469 inches on the 16th at 9 A.M.; lowest reading, 29.349 on the 28th at 9 P.M. Temperature: highest in the shade 68° on the 31st; lowest, 31° on the 11th and 12th. Mean of daily maxima, 59.03°; mean of daily minima, 40.80°. Mean temperature of the month, 49.91°; lowest on the grass, 25° on the 13th; highest in the sun, 131° on the 17th. Mean of the earth at 3 feet 49.06°. Total sunshine, 209 hours 35 minutes. There were no sunless days.—W. H. DIVERS, *Belvoir Castle Gardens, Grantham*.

— CLAY'S SUCCESSFUL GARDENING.—Though our pages are full, as a neat little handbook bearing the above title arrives we must make room for a few lines respecting it, as we shall have no space available next week. It may be concisely described as a good book, written by good men, in advocacy, presumably from their experience, of a good manure. That is the case in a nutshell. It is, perhaps, scarcely necessary to say more, though possibly some readers may like to know who the "good men" are. They are Messrs. George Gordon, T. W. Sanders, J. Udale, H. Shoesmith, H. C. Prinsep, A. J. Rowberry, G. Triuder, J. Hudson, W. Iggulden, and J. Fraser, all of whom are competent, and treat well the different subjects of plants, fruits, or vegetables with which they have been entrusted. Then by way of adornment, the book contains an article on Floral Decoration, by Miss Edith Chivers, gold medallist R.B.S., plus three charming photographic illustrations. This shilling handbook of 124 pages is published by Messrs. Clay & Son, Stratford, and E. W. Allen, 4, Ave Maria Lane, E.C., and will doubtless find its way into the hands of many amateurs and gardeners who may benefit by the information imparted in its pages.

— EARLY PEAS.—The first market or field Peas were gathered in West Middlesex (always a fairly early district) on June 10th, and were Eclipse. The sample was, for first picking, unusually good. This variety, which has larger and greener pods, has materially displaced Sangster's No. 1 from field culture in that market growing locality. Formerly the old Harrison's Glory, a fairly early and hardy round blue Pea, followed; but I notice this year some good breadths of that excellent dwarf variety, William Hurst. This, sown in rows at 18 inches apart, gives an enormous crop of nice pods from a large breadth. Harrison's Glory is a hard, dry eating Pea, but W. Hurst has distinct marrowy texture and flavour. It is surprising how few out of the myriads of Peas put into commerce suit the requirements of the market grower. Gradus is, without doubt, one of the earliest Peas in cultivation, the pods being large, long, and green; but as grown under ordinary field culture it lacks robustness, is thin of growth, very long jointed, and far from a free cropper. Ameer, also early, is rather better, but later, yet of the same long-jointed habit. Such varieties as Senator, Daisy, Early Defiance, and Oracle, all very robust, dwarf, and free croppers, rank amongst the best second earlies for laying in fields. Of twenty varieties being so tested this season, I hope later to indicate not only their stages of earliness, but their cropping qualities.—A. D.

— THE SOURCE OF ABIETENE.—Abietene is the volatile product from the resin of some West American Pines, and is the counterpart of turpentine, which is distilled from the resin of some other Pines, chiefly those in the Southern United States. Abietene is a more volatile liquid than turpentine, but both are hydrocarbons, although belonging to different series. About the year 1878 samples of abietene were received in Philadelphia, with the statement in one case that it was the product of *Pinus Sabiniana*, and in another case that it was derived from *P. ponderosa*. Of recent years it has come to be understood that the commercial source of abietene is *P. Jeffreyi*. As I had in my possession the barks from *P. ponderosa* and *P. Sabiniana*, it occurred to me that something might be learned by examining the volatile product of these two samples. They were accordingly distilled, and, while the yield was small, it was enough to get the characteristic orange odour of abietene in both cases. In another experiment the amount of volatile oil in the bark of *P. ponderosa* was determined to be about 0.2 per cent. The bark, therefore, would not be a profitable source of the oil. It is probable that both *P. ponderosa* and *P. Sabiniana* have yielded samples of this oil, although it may be possible that *P. Jeffreyi* is at present the commercial source. Some years ago Professor Wentzell of San Francisco detected oil of turpentine in the resin of *P. ponderosa*. It is possible that both oils occur in different parts of the tree. Unfortunately the commercial production of abietene and its resin is in the hands of a medicine company, which is disposed to attribute to these products curative virtues they do not possess.—HENRY TRIMBLE (in "Garden and Forest.")

— PRESENTATION TO MR. CUMMING.—Mr. Cumming, for some years gardener to Lady Gough, at St. Helens, Bootstown, was the recipient of an interesting address and presentation on the occasion of his departure from Ireland. The presentation was taken part in by a very large number of friends and well-wishers, and took the form of a valuable gold watch for Mr. Cumming, and a beautiful gold brooch (shamrock pattern) for his wife. The presentation took place at a dinner given in the Grand Restaurant, Lower Sackville Street, Dublin, and was very largely attended.

— CAMBRIDGESHIRE HORTICULTURAL SOCIETY.—The schedule of the three shows to be held under the auspices of the above Society has been sent to us by the Hon. Secretary, Mr. A. Matthew, 20, Trinity Street, Cambridge. The first one, at which the President, A. Peckover, Esq., is offering a special prize for thirty-six Roses, is being held to-day (Thursday). The second show is fixed for September 9th, and comprises classes for cut flowers, fruits, and vegetables. Exhibition No. 3 will be held on Thursday, November 11th, when Chrysanthemums will be the principal attraction. Most of the classes in each show are apparently restricted to members of the Society, but in November there are two open to all for thirty-six Japanese, distinct, and twenty-four incurved, in not less than eighteen varieties. The last two shows will be held in the Corn Exchange, and schedules may be had from the Secretary at the address given above.

— EARTHWORMS.—A discussion on the subject of earthworms and vegetable mould appeared in a recent issue of "Longman's Magazine." The writer, Grant Allen, states that it was Gilbert White of Selborne who first of all pointed out the importance of earthworms as producers and maintainers of the living layer of vegetable mould. It was the patient investigations of Darwin, however, which fully established the fact, and raised it to the rank of a scientific discovery, his first writing on the subject appearing in the "Gardeners' Chronicle." Later he issued an entire book on this interesting matter. Darwin showed that earthworms act upon the soil in three ways. In the first place they open up and loosen the ground for the roots to penetrate, more perfect aëration of the soil being thus obtained. The acids they secrete also act chemically upon the layer of rocks beneath in a way that assists the disintegration of the latter. In the second place they crush in their gizzards small fragments of stone and liberate their component elements. In the third place they drag down into their burrows countless numbers of leaves, which they eat, and carry up the refuse to the surface. It is computed that no fewer than 53,000 worms inhabit an acre of garden soil. These worms pass through their bodies 10 tons of material in a year, and throw it up as mould at the rate of 1 inch in depth every five years. The greater part of this mould is composed of a refuse of vegetable matter, and is teeming with myriads of bacteria. Even after allowing for other co-operating causes, earthworms are responsible for the formation and renewal of this layer of vegetable mould.

— THE CASTOR OIL PLANT.—The Castor Oil plant has been cultivated since the earliest historic time, and specimens of it supposed to be over 4000 years old have been found in Egyptian tombs. It is perennial in India, its native country, but as it has spread into less congenial climates it has lost that habit, like the Cotton plant, and is known to us as an annual. It is commonly supposed that the plant will grow wherever Indian Corn will thrive, and this is true where it is meant to be used as an ornament; but a recent circular published by the United States Department of Agriculture points out that it can only be grown effectively in commercial quantities in warm climates, since its only value is the oil content of the seed, and the general truth which is applicable to nearly all oil-bearing plants holds in regards to this one—namely, the warmer the climate the larger the per cent. of oil. Some varieties of the Castor Oil bean will mature seed in the northern half of the Indian Corn belt of the United States, but the plant cannot be cultivated there so as to yield paying quantities of oil. It needs a deep, fertile, loamy, friable, and well-drained soil, and then where the climate is sufficiently warm it will yield from 20 to 25 bushels of beans to the acre, containing from 50 to 60 per cent. of oil. The seeds, after being soaked for twelve hours in tepid water, should be set 5 or 6 feet apart each way, two in a hill, and when 3 or 4 inches high the weaker plant should be removed. The weeds should be destroyed, and the ground kept loose by surface stirring. The seed spikes should be collected as soon as the pods turn brown, and before the seeds drop out of the pods in handling, and placed in the sun until the seeds are partly free from the pods. Frequent gatherings are necessary, so that only such spikes are removed as are in proper condition. The seeds are first cleaned; then, after being gently warmed, are placed under a screw press, which liberates a whitish liquid. This is mixed with water and boiled for some time, and the impurities are skimmed off as they rise. Clear oil is at length left on the top of the water, the mucilage and starch being dissolved and the albumen coagulated by heat, forming a whitish layer between the oil and the water. The oil is further clarified by boiling, which drives off the acrid volatile matter. The Italians have a special method of preparing the oil which rids it of its nauseous flavour, and in this country medicinal oil is manufactured by cold expression from the crushed beans—"Garden and Forest.")



EPIDENDRUMS.

THE genus *Epidendrum* is the largest, numerically, in the order, and consists of an immense variety of plants so different in habit and inflorescence that one can hardly imagine they are members of the same genus. The name of the genus was doubtless suggested by their habit of growing, and as a matter of fact Linnæus included every exotic Orchid in it. But the great botanist could never have foreseen what an immense number of species the order would be found to contain when, as has happened, their lovely colours, graceful forms, and other beautiful features have led to their being searched for by enthusiastic collectors in every part of the world.

Thus the genus grew until it was quite impossible to suitably classify them all, and later botanists, as Swartz, Lindley, and Reichenbach, have broken them up into other genera. The residue is a very mixed lot of plants, some of undoubted beauty and first-rate garden plants, others miffy under cultivation, though handsome, while a large number are of no value whatever to the horticulturist, though interesting to botanists. The latter are, in fact, the weeds of the Orchid family, and unless a rare or unknown kind, are best relegated to the rubbish heap. It is a widely distributed genus, geographically extending almost from end to end of the American continent, and occurring in nearly all the adjacent islands.

Owing to this wide distribution, it is not possible to give a method of culture that will suit all the species; but, as a general rule, it may be conceded that all species having the *Cattleya* habit, such as *E. fragrans*, *E. cochleatum*, and *E. ciliare*, may be grown in an intermediate temperature, such as suits Brazilian plants generally. The dwarfier kinds, as *E. vitellinum*, do with less heat, thriving with the *Odontoglossums* or *Masdevallias*, or better still with the Mexican section of *Lælia*. One well-known exception may be noted in the lovely *E. bicornutum*, a species hailing from the West Indies, and requiring great heat to do it well.

It must be confessed that this plant is difficult to grow for many years under our artificial treatment, but it is worth obtaining if only for the sake of a couple of years' inflorescence. The best of all places to grow it is an almost unshaded part of the East Indian house, the plants being grown in pots close to the light or suspended from the roof in baskets. Peat fibre is not to be recommended for this plant, or at all events only a little. *Sphagnum* moss is a much better material, and a thin layer only of this must be placed over abundant drainage. Keep the plant on the dry side while at rest and until new shoots have started, but after this they may be treated very liberally as regards moisture, both at the roots and atmospherically. Close the house early during the growing season, with plenty of moisture and the sun shining fully upon the plants, and you have just the kind of atmosphere that *E. bicornutum* delights in.

It is a very singular fact about this Orchid that the base of the bulb splits vertically for a short distance, and being quite hollow forms a home for swarms of ants. These insects should if possible be kept away from the plants, as they can do no good, and are very unsightly. Thrips, too, are fond of the succulent young growths, and must be kept at bay if possible by sponging. The flowers of *E. bicornutum* are produced on erect scapes from the apex of the pseudo-bulbs, and are pure white in ground colour, the lip, and in some varieties the sepals and petals, dotted with purple, and provided with two horn-like processes, from which it takes its specific name.

E. ciliare is a very pretty plant, worthy of a far greater share of attention than it receives at the hands of cultivators. The flowers occur on erect scapes of about five or six, and are greenish white on the narrow sepals and petals, the beautifully fringed lip being pure white. It is an old species, having been introduced to British gardens as far back as 1790; it is widely distributed in South and Central America, and often arrives amongst importations of *Cattleyas*. *E. cochleatum* and *E. fragrans* are similar habited kinds, the flowers of both occurring on upright spikes, and having in each case the lips uppermost, this organ being almost shell-like in appearance. Both are old species, having been in cultivation over a century, and they are natives of various of the West Indian islands.

The section with tall reed-like stems, such as *E. evectum*, *E. radicans*, *E. Parkinsonianum*, *E. xanthinum*, and many others,

are an interesting free-blooming class of plant, which cannot here be discussed in detail. The blossoms usually occur in globose heads from the end of the stems, the last named, for instance, producing large golden yellow balls of flower, that lighten up many a house during the early spring months. They all like a fairly liberal mode of culture—a good root run, plenty of moisture, and a position not too much shaded. *E. vitellinum* is one of the most useful of all cool Orchids, free and constant in blooming, and of bright effective colour. It is very easy to grow in a cool moist house, and is a native of various parts of Mexico. It first flowered in England in 1839.—H. R. R.

COOMBE WOOD.

THE neighbourhood of Kingston Hill has long been celebrated for its many horticultural features, and amongst them the Coombe Wood Nurseries have not been the least famous. For years travellers on the road to Kingston can remember the splendid shrubs that are growing there, and many will have noted the handsome avenue of *Wellingtonia gigantea*, alternated with *Araucaria imbricata*, that runs down the centre of the ground into the valley beyond. Now there is a change, for the *Wellingtonias* have been removed, and perhaps the *Araucarias* will some day have to follow in their footsteps. When they are gone passers-by will miss a landmark that had long been familiar, but there will still remain the thousands of coniferous and other trees that proclaim the Coombe Wood Nursery of Messrs. Jas. Veitch & Sons, Ltd., whose reputation as horticulturists is world-wide.

Visits almost numberless have been paid by the writer to the firm's head-quarters at Chelsea, with its great area of glass houses; to Southfields, Fulham, where trained fruit trees are at home; and to Langley, near Slough, where hardy fruit trees of all shapes and kinds, hardy herbaceous flowers and Roses combine to interest the visitor, but until Friday last Coombe Wood in all its beauty had not been seen. Many times it was almost reached; failure succeeded failure until now, when it was fully realised what had been missed. For this is one of the most charming and interesting nurseries in the United Kingdom. Occupying three sides of a valley, one may from vantage points on each side get views that would never be dreamed about when on the level of the hill-top. One picture presents flowers, shrubs, with Wimbledon Common in the background; another similar vegetation terminating in the deep crimson of some *Acers*; and a third, looking from the last-named plants, shows *Rhododendrons* of many sizes and shapes, which, though past their best, were still a blaze of colour.

Starting from the main entrance we (Mr. Jas. H. Veitch, Mr. Howard, and the writer) first made our way to the several houses containing many thousands of Roses in pots. These are arranged in long, low, span-roofed pits, and the number of plants is nothing short of surprising. Their condition as regards health and cleanliness leaves nothing to be desired, and the same may be said of the hundreds more that are stood outside. House after house contains nothing but these, while others are occupied with plants that are rarely seen in gardens—some, indeed, that have never been seen at all, for they have been imported by this enterprising firm, and are now under trial. And very severely are they tested ere they are allowed to be put into commerce. Then there are in a warmer house plants that are being forced into flower for the Jubilee, all of which give abundant promise of future beauty.

Though there are many rare plants within these structures, others find a home on their wall outside. These include *Ivies*, *Olearias*, *Escallonias*, *Hollies*, and scores of others. Mention may also be made of *Rosa Wichuriana* (*Luciæ*), which is such a favourite plant in America, where it is said to ramble over banks, and appear nothing but a mass of bloom in its flowering season. Considering its beauty, it is somewhat surprising that we do not see more of it in places in this country. Perhaps when it becomes better known it will be more appreciated. Many of the plants represented here and in other portions of the nursery would probably not be met with elsewhere except in botanical gardens, and not always in those. This cultivation of plants that are rarely asked for reflects much credit on the firm.

Passing from the houses we enter almost immediately upon a path flanked by two broad borders planted with all kinds of shrubs and trees as specimens. Little plants of *Olearia stellulata*, about 2 feet high, are smothered with their white Daisy-like flowers, and

produce a singularly beautiful effect amongst the various colours of the leaves of the several shrubs and trees. *Olearia Gunni*, with branches roped with flowers, is also charming. *Berberis* there are almost without number, some with large leaves, and others

Another shrub we noticed was *Cæsalpinia japonica*, which was originally introduced by Messrs. Veitch from Japan. Unfortunately the habit is not very good, but the handsome canary yellow flowers, with their red filaments and anthers, more than compensate

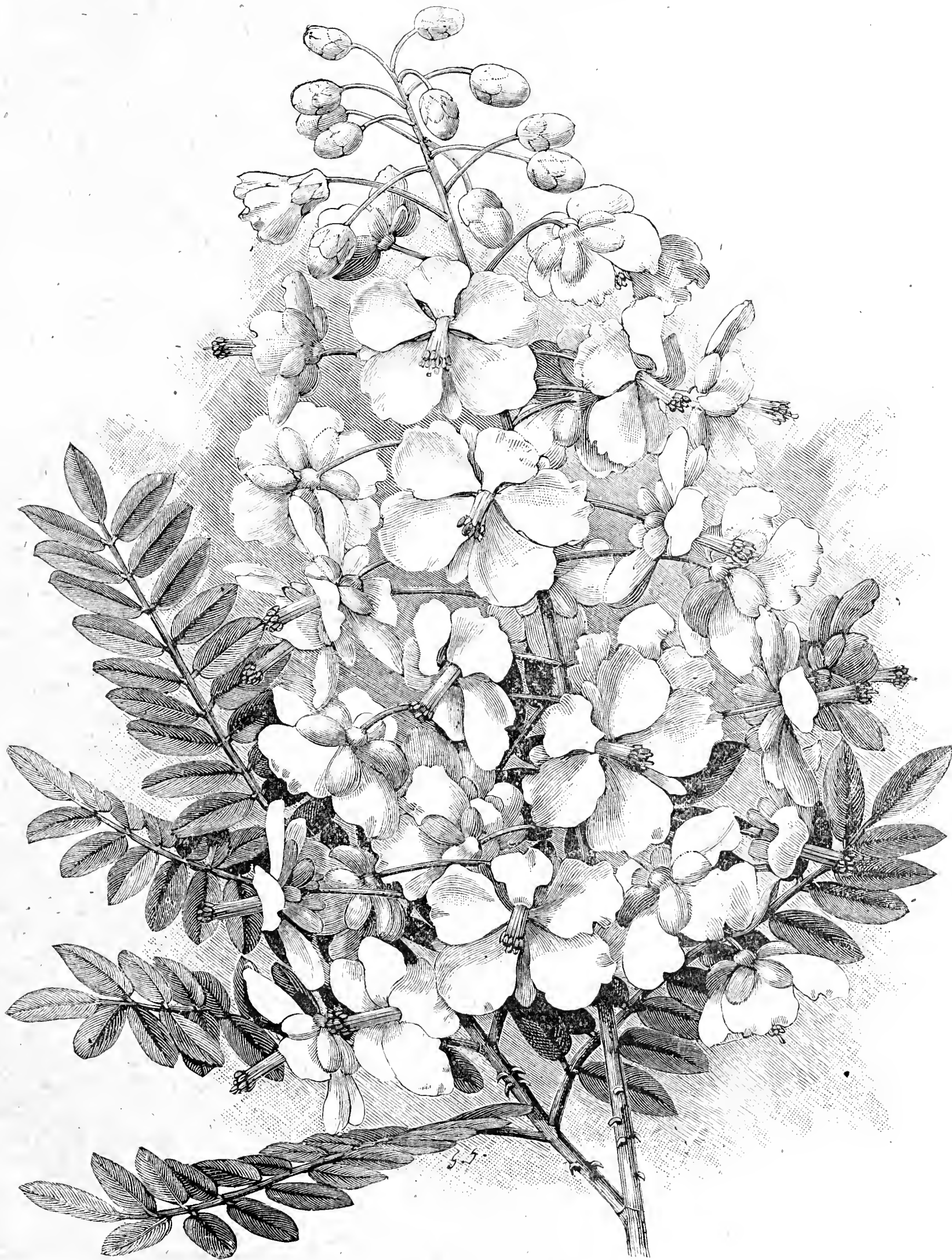


FIG. 100.—*CÆSALPINIA JAPONICA*.

with small ones. Of the former *B. aquifolium latifolium* has very handsome foliage, especially in the young state. *Hydrangeas*, *Viburnums*, *Syringas*, and *Weigelas* rise here and there to command attention. Of the last-named *Weigela rosea* Eva Rathke, with very deep rose coloured blooms, is almost perpetual flowering.

for this. The blooms are borne in long racemes, carrying upwards of twenty individual flowers. Of this we give an illustration (fig. 100). The plant is perfectly hardy. *Eucryphia pinnatifida*, which was figured in the *Journal of Horticulture* some time back, though not now in flower, is beautiful by reason of its foliage alone.

The Japanese Witch Hazels (*Hamamelis*) will be familiar to visitors to the Drill Hall, where they are often shown in the early spring months from Coombe Wood. A beautiful leguminous plant is *Hedysarum multijugum*, of which the purple flowers are produced with great freedom. The collection of *Nymphæas*, comprising Marliac's superb hybrids is very complete, and of the greatest interest.

One might continue mentioning flowering or foliage shrubs for still a very long time, but with one or two more we must draw to a close, as there are several other plants to which reference must be made. However, the *Stuartias* with their *Came'llia*-like foliage and clear white flowers, and *Styrax obassia* (see illustration fig. 97, page 507) must on no account be omitted. Another point in connection with these, apart from the beauty of the flowers and of the leafage, is their general good health. Here and there one may come to a plant that has suffered from transplantation, but the vast majority are in splendid condition, this applying to large and small alike.

The Coombe Wood collection of *Acers* is remarkable for nothing more than for its extent, for it comprised most, if not all, the best in cultivation at the present time. These Japanese Maples, with their beautiful leaves, are fast becoming popular, and deservedly so, for nothing looks more beautiful in the border than these. Planters were at one time rather shy of them, doubting their hardiness; but all fear on this score may now be removed, for on the somewhat cold soil at Coombe, and in exposed situations, they have stood uninjured for a number of years. They are well deserving of all the popularity that can possibly be accorded to them. Both the varieties of *A. japonicum* and *A. palmatum* and others are worthy of close attention for association with the other occupants of borders and shrubberies.

In a previous paragraph brief reference was made to the *Rhododendrons* as adding materially to the beauty of one of charming views. Now we must advert to them to call more specific attention to their variety, quality, and health. It is not proposed to give any names, but simply to refer to them as a whole. There are bushes and standards, every one of which has contributed, or is now doing so, to the interest of the collection. Some are light in colour, others are dark, but all are of the finest quality, while the deep-hued stout foliage creates the impression of sound health. These alone, when at the summit of their beauty, are well worth a journey to see. Hardy *Azaleas*, too, are of great beauty and in extensive variety.

The number of trees of almost all kinds that are grown is enormous, and the differences noticed in walking round are wonderful. There are Coniferous trees by the thousand, representing all those that can be cultivated at Coombe, and of all sizes, from the tiny plantlet to the shapely specimens. Other trees equally as good in health as the Conifers are numerous, and include Chestnuts, Limes, Planes, Sycamores, Walnuts, *Ailantus*, Hornbeams, with many besides. *Cerasus* are largely represented, as are *Pyruses*, while the *Magnolias* form a complete representative collection. They comprise *Watsoni* (of which the courtesy of Messrs. Veitch permits of our giving an illustration, fig. 101) *hypoleuca*, *Soulangeana nigra*, *parviflora*, *stellata*, *conspicua*, *macrophylla*, and several others. For these handsome plants the firm has a large demand, and frequently experience some difficulty in coping with it.

One of the finest features of the whole establishment is the collection of *Bamboos*, which is nothing less than a remarkable one. The visitor may see nearly every species or variety in cultivation, some with delicate-looking growths and others with very strong. The firm was prompt to recognise their utility for various situations on an estate, and with its usual enterprise commenced to make the stock as complete, succeeding in a highly creditable degree. Those who are interested in *Bamboos*, and desire to make close comparison, would find ample material to work upon at Coombe Wood, whence specimens have from time to time been shown at the Drill Hall.

Such notes as have found a place in the preceding paragraphs are incomplete in many respects, but to give an exhaustive reference to every variety and kind would be demanding too much space. They must therefore suffice for the time being, and readers will do well to make the notes of more practical utility by going to Coombe Wood to see for themselves. For his own part the writer is determined that, though it took years to make the first visit, it will be by no means years ere he makes another.—METROPOLITAN.

THE EFFECTS OF A STORM.

I NOTE in the Journal that on Sunday, June 6th, in London there was a thunderstorm with rain. Here we experienced one of the most terrific storms I ever remember. The early part of the day was very warm and sultry, and between three and four o'clock it became almost dark. The rain and hail then commenced to fall in torrents, so much so that within three-quarters of an hour, not more, we registered 1.53 inch of rain, consequently all low-lying places were flooded, as no drains could carry off the water as fast as it descended. Roads and paths were for a time like rivers, and tons of earth and sand were washed away. A short distance from where I am writing a fine Oak was struck by lightning, the trunk being stripped of bark, and split in twain. The tops of Potatoes, Beans, and Peas were cut off, while Lettuce cut into ribbons. Beet, Carrots, Onions were either cut off, washed out, or battered into the ground.

I thought we must have had the worst of the storm, but it was not so, for yesterday I visited Elmstead Lodge and Elmstead Grange (about a mile away), the scene there almost baffles description. Herewith I enclose a few samples of the damage done that you may form some idea of same. Mr. Blackburne, Elmstead Grange, is a noted grower of *Chrysanthemums*; he has a fine collection, which were at the end of last week mostly potted into their flowering pots. I never saw anything like the wreck they now present. The pieces I send are weak shoots. Not only are the tops and leaves cut off, but the stems are bruised with pieces of ice, and the stronger plants are in many cases split in two. Yesterday for the first time since Sunday we had sunshine; this caused the few leaves remaining on the plants to droop, as though dry at the root. Doubtless these have partly perished, as the pots were full of ice for quite an hour altogether—a sorry sight for an enthusiastic lover of the autumn queen. All parts of the garden in both places suffered in a similar manner, the ground being strewn with shoots and foliage of all kinds of things. Apples and Pears are also much injured, many of the fruit being cut off the trees. I hear similar reports from other places in the neighbourhood.—J. LYNE, Foxbury, Chislehurst.

[We much regret to know of the damage done by the storm, as evidenced by Mr. Lyne's contribution and the specimens sent. They were indeed fearfully damaged.]

SWANMORE PARK.

THE trees were about to assume their autumnal garb, the flowers of summer were almost gone, and the fields had given fruits for the year, when the writer made his first visit to Swanmore. A more recent journey, undertaken as the foliage of the forest was just becoming green, while yet the nodding Daffodil wafted in the breeze, and before the fields were fully clad in their welcome garniture, to Mr. Molyneux in his Hampshire home showed his charge—the gardens and the farm—changed but happily only for the better. In all the several departments of an estate such as that of W. H. Myers, Esq., M.P., there is a never-ceasing activity in the month of May, so that the arrival was made amid signs and sounds of rural industry. All readers of the Journal will not have visited Bishops Waltham, so reference may be made to the ways and means of reaching there for the benefit of those to whom the future still holds that pleasure.

Some may start from London, others from Southampton, and more from Portsmouth, and from the latter it is easy of access, while the two former are slightly more difficult. From the Metropolis the London and South-Western Railway runs smoothly, swiftly, and pleasantly through all forms of land culture—good and bad—from the garden of the cottager to the domain of the wealthy, past the clean grounds of nurserymen, the broad acres of the farmer, and the stretches of forest and woodland. Look a moment at the various phases as the train speeds on. Just to the south of Surbiton is the home of the *Narcissus* and the *Tulip*, for there are situated Barr's Nurseries, the memory of which will scarcely have become dimmed ere Woking, renowned for its shrubs, is passed, followed quickly by Aldershot with its acres of moor peopled by soldiers. Basingstoke brings to mind the vegetables grown by Mr. Bowerman at Hackwood. Winchester, the birthplace of the *Cottage Gardener* over forty-eight years ago, teems with horticultural associations, while Eastleigh brings us to miles of works belonging to the company in whose carriage we are riding. Here the lines branch for Salisbury, Southampton, and intervening places.

The journey interrupted here is soon resumed for Botley, whence come so many Strawberries in the season, and for Bishops Waltham a change must be made into the waiting train, which soon carries us to the end of our ride, and we alight to receive a hearty welcome from the genial "E. M." Passing the ruins of an abbey, handsome in their decay, amongst which may be seen Wallflowers growing on the wall sides, and we are soon in the old fashioned town just named. It is not very large, and the streets are not particularly wide, but they are perfect Thames Embankments in comparison with the lanes upon which we enter after

leaving it. There were made for one vehicle at a time only, there being steep banks on each side, on to which one is very liable to be deposited by the jolting of the conveyance, for be it understood the roads are not wood paved, any more than they are asphalted. However, the ordeal is safely passed, and we emerge eventually into a main road that would be no disgrace to Macadam.

But the drive through Swanmore Park is better, for it is smoother and flanked by cool grass, and handsome trees are dotted here and there. Some have felt the weight of the storms of March and been blown to the ground, though only a few; the majority bent no doubt before the fury of the gale, but withstood the onslaught, and came out unscathed. The creeper-clad residence of Mr. Myers is left behind, and the home of our host is quickly reached. An old house it undoubtedly is, but none the less a comfortable one, which was thoroughly overhauled and made comfortable by an appreciative and generous employer when Mr. Molyneux added to his duties of gardener the arduous work of steward.

Though it is not possible to go into details regarding the farm work, we cannot refrain from remarking upon the generally excellent condition of the land, and the way in which it is proposed to utilise all available ground instead of wasting the 10 or 12 feet wide margins that have hitherto been left. Mr. Molyneux's education as a gardener will doubtless stand him in good stead as a farmer, for no one in the first named capacity has a better appreciation than he of the importance of the most thorough cultivation, and by the work which is now being carried out on the farm it is apparent he intends, so far as is possible, to extend those excellent principles to that department as well. Everyone who knows him, either personally or by reputation, will wish him well in his new duties, and those who recognise his sound judgment, practical common sense, and unwavering determination have little fear for the result.

Returning now to the horticultural department, a few words may be said of the charming Swanmore House, on all sides of which creepers have been trained, and the effect they produce is singularly pleasing. There are Roses in superb condition, Veitch's Ampelopsis, and many other plants that need not now be mentioned. At the foot of the wall at one end of the house is a splendid specimen of *Choisya ternata*, a shrub which in a suitable position is wonderfully beautiful. The smooth lawns around, the borders, the flowering and foliage shrubs, all bear the impress of careful attention. Many of the trees are fine, especially a very handsome Cedar, while the Pyruses, Magnolias, are extremely effective. Another plant deserving of mention is *Exochorda grandiflora*, which was at the time of this visit clothed with flowers. It is said to be shy in some places, but it gives no evidence of this at Swanmore.

One of the most interesting features of Swanmore is the system of having gardens devoted almost exclusively to one kind of plant. For instance, there is a Pæony garden, containing scores of the best varieties in cultivation, and all in the best of health, which must produce a glorious display when they are in flower. The enclosed garden, with its broad borders devoted to Michaelmas Daisies, is equally as complete; while the newly formed Lillium border is no less admirable. The two latter were of course a long way from being at their best, but it could easily be seen by the strong, clean, healthy growths that later on they would be worth a long journey to see. Hyacinths, Tulips, Crocuses, Snowdrops, and Narcissi planted by thousands in the grass are lovely in the spring months, though but a few Daffodils remained at the time of this visit. Every season for a long term of years bulbs have been planted, and the system is one that might well be adopted in every garden in the country. The mowing of the grass is of course not commenced until the last of the foliage of the bulbous plants is dead, or practically so.

May cannot be termed the most favourable time to see the herbaceous borders, the flower garden, or the vegetable departments—their time of plenty will be later in the year. The mixed borders, however, contained

many plants in flower, while over the gateway into the garden a splendid specimen of *Akebia quinata* diffused its peculiar fragrance. The two hedges of *Berberis Darwini* on each side of the centre walk of the kitchen garden looked very fine, and were a pleasant change from the Arbor Vitæ, Privet, or Yew hedges with which one so commonly meets. Everywhere, in beds and borders, there was a tidiness without any signs of stiffness or formality, and a freedom from weeds that speaks well for the attention given by the gardener and his assistants. The vegetable quarters, with their Potatoes, Peas, Beans, Lettuces, and others, were also in a highly creditable condition.

Under glass the Vines were the best feature, for they are magnificent. From the top of the rod down to the water pipes at the bottom there was clean wood, stout leaves, and handsome bunches, a state of affairs that is very different from those vineries where the bottoms of the canes are almost fruitless. Mr. Molyneux attributes this condition to a thorough

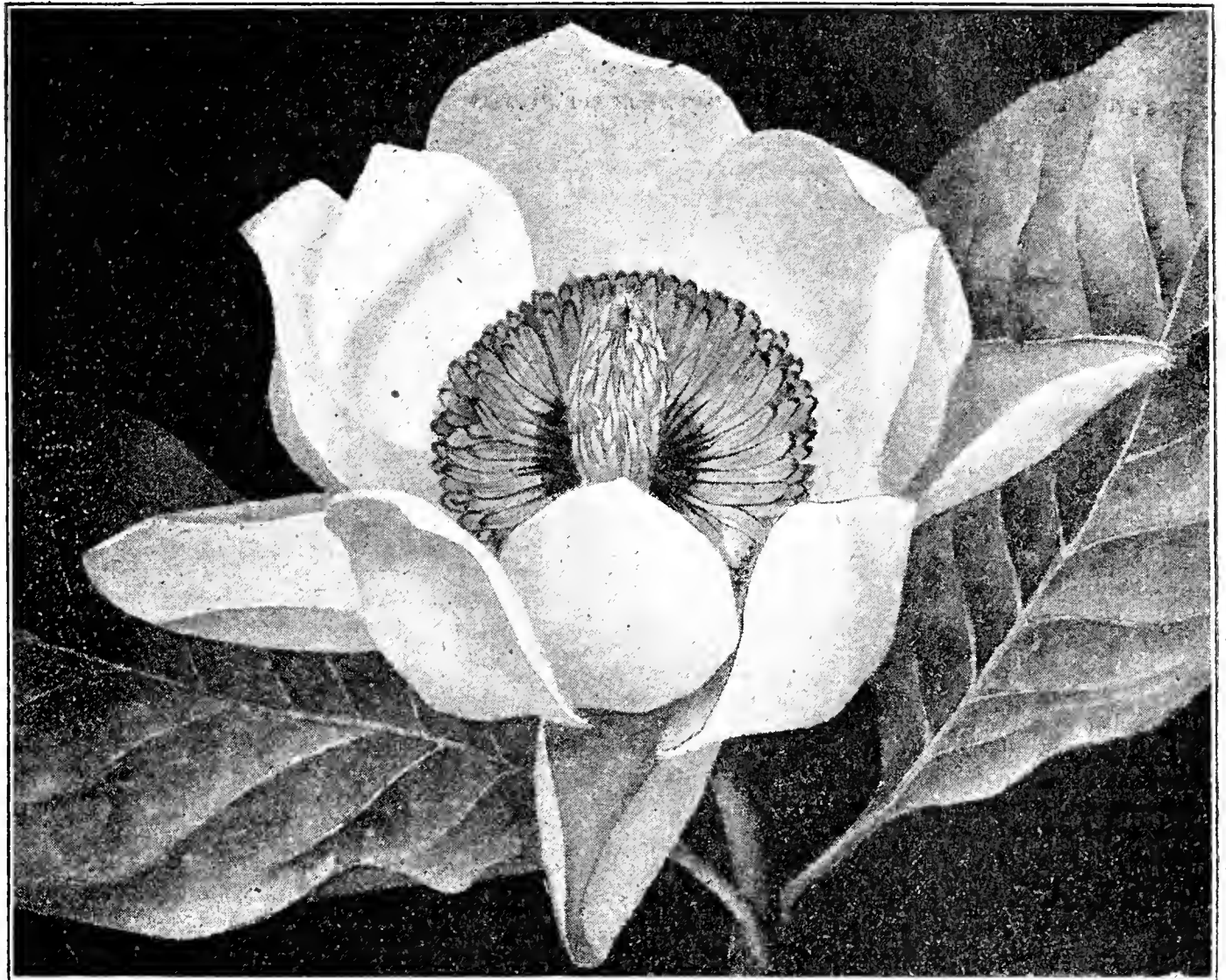


FIG. 101.—MAGNOLIA WATSONI. (See page 532.)

groundwork, secured by taking the rods up gradually, thus securing sound growth the whole length. Nineteen years have the Vines been in, and they are as good now as they were five years after planting. The plants grown are of various kinds, and include many foliage and flowering ones that are useful for decoration complete or in a cut state. Sweet Peas in pots were producing numbers of perfect flowers vying with the hundreds of Rose blooms on the roofs in spreading a delicious perfume. Then there are in frames *Chrysanthemums à la Molyneux* (which means much), and scores of other things which cannot be mentioned in these brief notes.

Fruit out of doors at Swanmore is wonderfully good. The walls are all clothed with trees, but the most interesting section is the orchards of young bush and standard trees. No one need wish to see better trees than these. The wood shines with the glow of health, the branches are disposed so as to admit light and air, and the varieties are of the best. Planting is not done by ones and twos, but by dozens and scores. There are long rows of Worcester Pearmain, Lane's Prince Albert, Benoni, Bramley's Seedling, Warner's King, Lord Grosvenor, and others, amongst which it would be impossible to find a really bad specimen of culture. The roots are practically on the surface, and a mulching of good manure is given every year. The fruits are sent to various markets, where top prices are always secured simply because the specimens are of the best quality and are marketed in a proper manner—that is to say, they are all graded before leaving Swanmore. Buyers, knowing of this, can rely upon the sample being the same in the middle and at the bottom as it is at the top of the package. To these attentions to details Mr. Molyneux ascribes his success in getting such excellent prices.

From the orchards we made our way through fields and belts of trees back to our resting place, passing as we went the hundreds of chickens of which our guide is so proud, and which he expects to grow as well as Chrysanthemums and Apples. The shades of night were falling, and save for the sweet song of the nightingale, there was no sound to disturb the peaceful stillness of this charming Hampshire home. After another look round in the morning the return is made to Bishops Waltham, *en route* not for London but for the Isle of Wight. —H. J. WRIGHT.

FIRST REPORT OF THE WOBURN EXPERIMENTAL FRUIT FARM. 1897.*

THIS book consists of 194 pages, and contains the "Working and Results" of the above establishment, founded by his Grace the Duke of Bedford at Ridgmont in 1894. The report is by the noble Duke and Mr. Spencer U. Pickering, F.R.S.

The ducal house of Bedford holds a highly distinguished position in the annals of British research in agriculture and landed estate affairs, and the munificence of the present head of the renowned family is seen in the Experimental Farm placed at the command of the Royal Agricultural Society under Dr. Voelcker, and in the Fruit Farm supervised by Mr. Spencer U. Pickering, F.R.S. These initials, as everyone knows, imply a person of distinguished talent and meritorious research in the arts and sciences.

The report suggests that the Woburn Experimental Fruit Farm will be carried on on purely scientific principles. This is a departure from established precedent. Science is regarded by many, if not most, cultivators of the soil, as synonymous with theory—always attempting something but showing little that is tangible—useful. Now, at last, we hope to have proved and explained, the sound, solid, and sure foundation upon which has been built the superstructure exemplifying British horticultural art, as seen in its highest aspects, in a manner unrivalled by any other nation in the world.

In the introductory remarks our noble and learned authors state that "The main object of this experimental station is to ascertain facts relative to the culture of fruit, and to increase our knowledge of, and to improve our practice in, this industry. Our object is not to provide a model of a commercial fruit farm, nor to induce farmers to adopt fruit farming instead of agriculture. We believe it is true that fruit farming might be successfully extended in this country, and that a certain, though perhaps a small percentage of those who now find agriculture an impossibility, might be able to gain a fair livelihood by the culture of fruit; but if we are to aid any such extension, it will not be by the direct, or still less by an indiscriminate advocacy of the industry, but by increasing our knowledge of it, both from a scientific and practical point of view, so that those who may embark on it may be able to equip themselves better for their profession than they now can." That is excellent.

The report is divided into two parts. Part 1 treats of the "Description of the Ground and the Experiments," and part 2 of the "Experimental Results." In order to be understood of my readers, I will give a few extracts that will not only be interesting, but convey useful information to readers of the *Journal of Horticulture*, who may not invest in the book (price 5s.), which, however, I strongly advise them to do, so that they may see for themselves to what scientific scrutiny our time-honoured practices are being, and are to be, subjected. But there is nothing to fear; the methods adopted by our most successful cultivators will stand any test that can be brought to bear upon them, and if they can be bettered in any way by all means let science extend its hand and show a better way to increased, more useful, and economical production. Then, and then only, will it do great and substantial good.

"*The Ground and Soil*—The farm consists of a field of 20 acres, situated close to Ridgmont station on the Bletchley and Cambridge line. Soil, sandy loam. The subsoil a bed of clay of considerable depth. Borings have been sunk in two places to 45 feet below the surface without reaching the bottom of it. The ground was all well trenched before planting was done, and repeated forking and hoeing have been necessary to get rid of the weeds, which were very abundant. Throughout the greater part of the field there is a gentle slope towards a brook, which runs along the south-west side of it. The height in feet of various parts of the ground below the highest point is marked on a sketch plan, the highest point being about 15·4 feet above a road by a brook, the distance from this road being 750 feet, and the average slope, therefore, 1 in 49. The brook runs between banks 3 to 4 feet high; it is never dry, and in flood time it occasionally overflows its banks, swamping the lower portion of the ground."

A table of analysis of soil gives the percentages in lime, carbon dioxide, potash, phosphoric acid, nitrogen, and sand, at three different depths—namely, first, 9 inches; second, 9 inches; third, 9 inches, and from five stations, which strike me as singularly interesting and instructive, as for instance:—

Sample. A.	Lime.	Carbon Dioxide.	Potash.	Phosphoric Acid.	Nitrogen.	Sand.
1st 9 inches.	0·36	0·11	0·25	0·16	0·136	58
2nd 9 inches.	1·12	0·45	0·54	0·13	0·088	32
3rd 9 inches.	3·84	2·28	0·73	0·09	0·060	14
† Mean.	1·77	0·94	0·50	0·12	0·094	34

* Eyre & Spottiswoode: London.

† Not given in the Report.

Now if the ground was trenched 2 feet 3 inches deep, down goes the 0·16 of phosphoric acid, and 0·136 of nitrogen—the chief factors of fertility, with the 58 of sand—an important substance as regards the mechanism of soil; and on the top there are 3·84 of lime, 73 of potash, and 14 of sand, 9 inches of "liver" and sterility, for the potash does not come out well without a due proportion of phosphoric acid and nitrogen.

Suppose we mix the whole three together instead of trenching, then we see that a thorough stirring affords a mean of constituents and staple, which mostly return an equivalent in crop equal to, and in some respects better than, a good manuring. If this were carried out with the other remainder of the samples, the difference between trenching and stirring would be even more striking.

"Trenching," according to all authorities, and as understood by practical men, means making a trench not less than 2 feet deep, and in this casting from the next section of equal width a spade depth of the surface soil, then placing the under or subsoil on the top of it. "Bastard trenching" is another thing entirely, and generally very much better in dealing with a ploughed field. In exhaustive experiments in fruit growing, such as those in question, it is to be presumed that both methods are being fully tested, also drained and undrained land, as going literally to the root of the whole matter.

The analyses of soil show a considerable variation, both in constituents and in staples, which are clearly set forth in the plan and references. The field is not a scientifically ideal one; but all the better for that as it will require different treatment so as to suit the varied fruits, necessitate more extended experiments, and result in information adapted to the requirements of the greater number of persons who must of necessity work under very diverse conditions as to site and soil, not one area in a hundred, be it large or small, being "ideal."

Sites relatively high and low, dry and wet, with soils strong and weak, rich and poor—mostly poor—have to be turned to account in the best way they can, and if science can prove by practice the better way for each this will "increase our knowledge and improve our practice," the world being the gainer. A dead level of uniformity might gladden a scientist's heart and make his work easy, but the results accruing would not and could not meet the wants of the majority who have to work under more or less adverse conditions. Experiments conducted on the typical Woburn sand would be greatly limited in their ultimate usefulness.

Having regard, then, to the vital and substantial question of ascertaining facts for affording sound guidance to those who most need it under varying and often unfavourable circumstances, the field at Ridgmont seems to afford excellent scope for attaining the object the Duke of Bedford has in view—"equipping those workers on the land who may embark in fruit growing with the scientific and practical knowledge" which so many lack; and who therefore fail.

Proceeding, the report says that no manure was used at the time of planting. Subsequently artificials were applied, based on an analysis (given in the report) by Professors E. Wolff and J. König, and of which the constituents and quantities are also given; but as there has, obviously, not been time for ascertaining decisive effects, for these we must be content to wait.

In the foregoing I have endeavoured to give the reader an insight into the situation, soil, and principles of nutrition accorded to the trees in the Woburn Experimental Fruit Farm, as these, from a practical point of view, are the greatest essentials. The descriptions of the experiments follow in the report, and are shown on a well-executed plan to a scale of 200 feet to the inch. Altogether there are 672 experimental plots, to which I cannot refer in detail; but there are representations of nearly all conceivable methods, and the whole minutely referred to. Most, if not all of these, however, have been already carried out, some in this and others in different places and countries; but, and this is the great and grand distinction of the Duke of Bedford and Mr. Spencer Pickering's objects and plans—namely, in bringing something of everything and nearly all scattered methods and operations in one field. In this respect the Woburn Experimental Fruit Farm is unique. All hardy fruits, in every form of culture, can be compared with each other under both an identity of and in differing soil and enviroinal conditions.

There are dwarf Apple trees on the Paradise stock under ten different modes of branch treatment, five of root treatment, six of surface soil, ten of different manures, five of amount of manure, five of time of applying manures, fourteen of planting, and five of time of planting, or sixty experiments, with six trees each of Bramley's Seedling, Cox's Orange Pippin, and Potts' Seedling in each experiment. Indeed, there appears to be every form of tree and mode of procedure exemplified on both dwarf and free stocks, besides collections in both forms. We are not surprised that spring planting has answered so well, but one swallow does not make a summer, and it is hoped the planting experiments will be repeated. The effects of pruning and non-pruning after planting are shown in illustrations, and so far all in favour of the former; but in these and other experiments more time is needed for fully testing the results.

Eighty-six varieties of Strawberries are grown for comparison "Farmers' Plots" in fruit trees, bush and standard, are demonstrated and shown by plan, likewise "Growers," and "Cottagers" receive a fair share of attention.

Then come experiments on the arrangement of trees, with the object of ascertaining the respective merits of the different systems in which the same number may be arranged in a given space, as quoted below:

"Each plantation consists of thirty six-trees, twelve Monarch, twelve Czar, and twelve Victoria Plums, surrounded by trees of Rivers' Early

Prolific, so that none of the experimental trees are 'outside' trees on their respective plantations.

"Each plantation represents an arrangement giving 1210 trees to the acre, and therefore every tree has the same amount of space allotted to it."

To demonstrate this our noble and talented experimentors have adopted three systems of arrangement, as follows:—Square: "the neighbouring trees are 1.83 metres (6 feet) in two directions at right angles to each other."

Rectangular.—"In which the distances between the trees in one direction, 2.59m. (8 feet 6 inches), are double those 1.30m. (4 feet 3 inches) between them in a rectangular direction."

Hexagonal or Equilateral Triangle.—"In which the trees form rows inclined to each other at angles of 60° instead of 90° as in the preceding arrangements. The distance between the trees in these rows is 1.99 metres (6 feet $6\frac{1}{2}$ inches)."

As these arrangements are not clearly shown by diagrams, I have considered that it may be useful to young probationers if they were given in the *Journal of Horticulture* with a few observations.

Square (fig. 102, A). To get this we form a figure with four sides at the corner of the plot to be planted with trees, each side of the distance they are to be apart, and each angle formed by the lines intersecting at a right angle. It is 6 feet square (a), and in the centre of this put in a peg—a station for the first tree. This will be 3 feet from the side and end of the plot, and a radius of that distance embraces a circle 6 feet in diameter—the space at the command of the individual tree, which is less than that of the square = 36 square feet.

Rectangle (B). The length (8 feet 6 inches) is measured from a corner of the plot, then the breadth (4 feet 3 inches) from the starting point at a right angle, and from the long leg and the short bisect the radius of the two distances, and have a rectangle (b)—a figure twice as long as wide, and its four angles right angles. Its centre is the station for the first tree. The dimensions of the figure are 36 feet 28 inches, but of this the tree can only command the area enclosed in a circle 4 feet 3 inches in diameter, for Nature will assert its supremacy—the tree grows equally all round from its stem in spite of either science or practice, and can only spread 2 feet $1\frac{1}{2}$ inch in the direction of its nearest neighbour, equally anxious to make the most of the advantages present. Therefore, the rectangular placed tree soon becomes pinched on two sides for room, whilst on the other two it may grow out 4 feet 3 inches without hindrance.

The rectangular method is the sheltering-wind system of gardeners, and much approved by some, as it admits of cropping the unoccupied space between the rows of trees, with other advantages, such as shelter, obtaining and retaining the sun heat, which means earlier or later, as the case may be, and, in some cases, better produce. The trees get plenty of sun and air, more than by either the square or equilateral triangle modes, always provided the between crops are low, kept away from the trees, and these not allowed to meet in the rows so as to form a hedge, thus losing half of each tree.

Equilateral triangle (C). This figure consists of three sides and angles, all equal, and the points correspond to stations for trees. To form it, proceed as in forming the square, for the equilateral triangle is only the half of an equilateral rhombus—an oblique square, but have the base line 5 feet 6 inches—the distance between the rows, and the perpendicular 6 feet $6\frac{1}{2}$ inches—the distance for the trees in the rows. Its centre is the station for the first tree.

The trees by the equilateral triangle system are 6 feet $6\frac{1}{2}$ inches from each other, those by the square plan 6 feet, and by both methods the trees are equidistant. On the "square" the trees have the same space in the rows as between them, but those on the "equilateral triangle" are not so far apart between the rows as in them, neither horizontally nor obliquely. The trees on the rectangular system are really only 4 feet 3 inches apart, as half the space is unoccupied so far as the trees can make use of it.

In Nature—it is the whole art—the trees grow upward and outward equally. It is the same with well managed ones, so that each tree claims, as far as it can, its share of light and air. The "square" has more of these essentials than the "equilateral triangle," and the

"rectangle" twice as much as the square. This is demonstrated by the space outside the circles.

On the square method four trees occupy 144 square feet, and the thirty-six trees that number of square yards, thus forming a square of six ranks every way—the Greek phalanx—the best arrangement for men and trees.

By the rectangular system four trees stand on ground 17 feet long and 8 feet 6 inches wide = 144 $\frac{1}{2}$ square feet, and the thirty-six require a parallelogram 51 feet long and 25 feet 6 inches wide = 144 $\frac{1}{2}$ square yards.

On the equilateral triangle mode the area within the lines forming it is 18 feet 28 inches, but every tree does not stand in its centre, but in an equilateral rhombus—a figure of two equilateral triangles; therefore each tree has the better side of 36 square feet at its command, and every four trees advantage of something over 144 square feet. The thirty-six trees in six rows require an area in the form of a parallelogram of 51 feet long and 25 feet 6 inches wide = 144 square yards $4\frac{1}{2}$ square feet, but this must not be a rectangle, or a tree will be lost, or a station for one, in every other row, therefore the trees cannot be got in, being three too many. If the figure be a rhomboid—an oblique rectangle—they will fit in exactly. This is easily formed, either on paper or the ground—at least, if it cannot be done in theory it cannot be in practice.

I have shown the equilateral triangle system on the "square," but by taking forward any of the oblique lines, so as to provide stations for six trees, a rhomboid may readily be constructed. The loss of trees or stations on the square is shown at d. Every four trees form the angles of a rhombus one way, and the other "diamond"—that for the glorious Jubilee. Six trees (d) equidistant from and around a central one (e) correspond to the angles of a hexagon, hence the system is sometimes called the hexagonal. Albeit, the tree in the middle renders the whole thing septuple, which is exactly what it is when one has to plant trees on this little-used system.

I had intended to complete the critique of the "Working and Results" in a much less article than this has run into, but I found the whole so interesting, and the tree arrangement so intricate, that I got lost in diagrams and numerals, and in getting in and out considered the matter might as well be traced in as clear a manner as possible. The scale is 16 feet to 1 inch, so now, Mr. Editor, let young gardeners have a little educational exercise in working the whole three systems out to thirty-six trees, and in that way, among others, the Woburn experiments will do good. "Results," therefore, must stand over for another article, if room for it can be found in the *Journal of Horticulture*.—G. ABBEY.

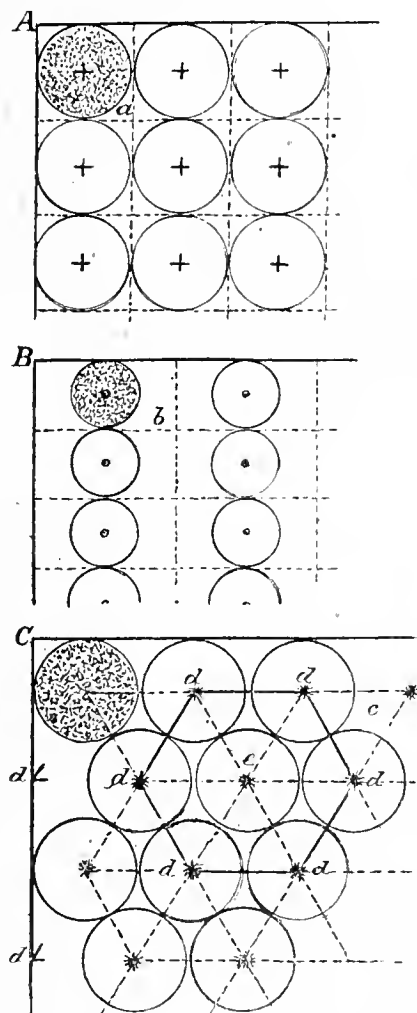


FIG. 102.—METHOD OF ARRANGING TREES.
A, square; B, rectangle; C, equilateral triangle.

INSECT INVASION.

I AM pleased to learn that our old friend the Persian gentleman, as "Wiltshire Rector" once termed "Y. B. A. Z.," is not yet extinguished, and trust it may be many years before such a loss befalls us. It is to such as he who, after a busy life in a profession demanding the keenest observation of cause and effect, is left in its eventide with a comparative amount of leisure, possessing abilities of no mean order and great energy, also a thorough love for things horticultural, without the fads and wrong notions of the average professional gardener, that we must look to for help in solving many of the difficult problems which still surround us.

"Light periodical fumigation" for aphides is a useless extravagance, not unattended with danger if tobacco paper is used, and needlessly curtailing the enjoyment of those for whom the houses are kept going. There are several preparations now that can be used with such certainty and safety that the old haphazard plan need not be resorted to. Among these are the XL Vapouriser and Hughes' Vapour Rolls. By measuring the capacity of the house, stuffing up any large openings that may be there, and following minutely the vendor's instructions, you may with certainty kill every aphid with one operation without damaging the tenderest Fern frond or the leaf of a *Humea elegans*.

Whatever may have been the habits of the ancient aphides, the modern ones do not go the roundabout way of laying eggs except for preservation during winter, so that one properly conducted fumigation or vaporisation clears your house entirely, and in my experience one operation has occasionally sufficed for a whole season, even with a house of Roses.—WM. TAYLOR.

DURING the last few days, without the cognisance of either "W." or myself, there must have been a telegraphic or telephonic wire between us. At times certainly there has been electrical tension in the atmosphere, but that would scarcely account for the story as it stands. It must have been something more tangible—and, truly, there it is—it must be the bond and sympathy of "Our Journal!" Hang the differences of opinion, say I, if they after all only bring us closer together; if they but make us feel that we are co-workers, some in a very humble way, like "Y. B. A. Z.," others, like "W.," practical, inured to work, and successful in it.

Is it not a strange coincidence—reading like some incident in a romantic novel—that "W." should quite accidentally stumble on the early days of my cognomen and the visit of my early friend, and in those days our Journal's friend—"Wiltshire Rector?" How the words carry us back! It is several years since I heard anything of my old friend, and it is a record of the past. But the strange portion of the story is this—that whilst our friend "W." was, shall I say, standing aghast at this demolition of his "Young Bachelor" theory, and ruminating thereon, I too was raking up the ashes of memory and penning

them to "our Journal" in order that the many readers might have the pleasure of reading a letter from the then facetious editor, which was the sequel to that visit of "Wiltshire Rector's."

That letter I treasured, and have kept ever since, and with a few remarks it was forwarded for the inspection of the present wearer of the editorial mantle to see and to print. *En passant*, I may recall my own despair at the appearance, not the flavour, of the Malay chicken, which did not look as well as I hoped, or as that breed generally does on the table; in fact, it was to me a case of the Irishman's pig which, when killed, did not weigh as much as he expected—and he never thought it would!

The old Editor's letter, printed after the appearance of "Wiltshire Rector's" pleasantries, runs thus:—

171, Fleet Street,
February 4th, 1865.

Salaam Do,—May your shadow never be less, O Ybaz! When you next sacrifice a Malay or a Bramin to propitiate a Priest of the West may we be there to partake of the savoury offering.

We beg permission to place before your footstool a chit from another son of the West—be gracious to him, and reply by the public burkaru (vulgar, post).

Wishing you nothing but sunshine—and no end to your blessings to and from "our Journal." I bend lowly as—ONE OF THE FAITHFUL.

After all this, it is perhaps but fair to enlighten any who care to know why I adopted "Y. B. A. Z." as my signature. In days long since gone by I was hating myself whether I would, or *could*, write anything that would be either useful or interesting to "our" readers. On the point of giving up, the thought came, "Why be a zero?" I dashed off my thoughts, and not liking the aspect of "Y. B. A. O.," I took the first letter of zero as the final, and now the murder is out. After all, "What's in a name? A Rose by any other name would smell as sweet." It might, possibly; but I fancy were it changed the plant would be more thorny still, and some of them are thorny enough already. But who, in this Diamond Jubilee year, when it is suggested that everyone should wear a Rose on the commemoration day, would think of changing the name?

Just a word of thanks to friend "W." Evidently he feels certain that milder doses of fumigation will destroy the eggs of aphides. I have been groping in the dark over this, but had nearly arrived at this conclusion, except as to the mildness of the dose, but now, as far as inside the house goes, I do not mean to have an aphid visible. It is, however, no wonder if we amateurs do make mistakes as to watering, air, and routine. It is practice that makes perfection, and here, of course, the practised gardener beats us; still, once every now and then solace comes to us, and I, in common I expect with most amateurs, enjoy it when it occurs, I mean the pleasure of beating the practical gardener in open competition, a pleasure which has, though very rarely, been the lot of him who still is the learner.—Y. B. A. Z.

[It is quite true that the characteristic letter of "One of the Faithful" (the late genial Mr. G. W. Johnson) was received by us last week, as also was that of Mr. W. Taylor; but both these letters arrived after our pages were filled, with "W.'s" narrative and "discovery" in them. It seems that the minds of three persons were directed (practically at the same time) to the same circumstance, which occurred more than thirty years ago. This would not be singular in the case of those who remembered the episode, but it was somewhat remarkable that the third, who had no knowledge of it, should, when searching for something else, take a volume out of a long series (nearly 100), and open it on the very page containing an article headed "Y. B. A. Z.," probably the only article so headed in the 50,000 pages bound in the series, and this just at the time when he was interested in the cognomen, and seems to have been trying to solve the problem involved in it. Let us hope he will be happy now. As these are commemorative days, we should not be surprised to hear of "Y. B. A. Z."-ero, who has a heart even many degrees above freezing, considering the sacrifice of another Malay (if he have one left), in order that the telepathic trio may have a celebration of their own. We feel certain they would be "friends at once," and then might again be proclaimed by the host the ancient formula, "There is the bond!" pointing to "our Journal." He would not be pronounced a Zero by the guests, who, we may expect, would at once propose and pass an amendment, "That 'Z' be struck out, and 'H' take the lead in its stead."]

NEW CODLIN MOTH SPRAY.—Professor R. C. Kedzie of the Michigan Agricultural College claims for the following spraying mixture that it is more reliable than Paris green, that it does not burn the foliage of trees, and that it costs considerably less. It is not patented, and here are his directions for making it. Boil 2 lbs. of white arsenic and 4 lbs. of sal soda for fifteen minutes in 2 gallons of water. Put into a jug, label poison, and lock up. When ready to spray, slake 2 lbs. of lime and stir it into 40 gallons of water, adding a pint of the mixture from the jug. The mixture in the jug will be enough for 800 gallons. These 800 gallons will require 40 lbs. of lime. Its advantages over Paris green are as follow: It is cheaper, and the ingredients can be readily procured; it is easily prepared and kept ready; it will keep for any length of time; it is uniform in strength; it does not injure the leaves of trees or plants; it colours the leaves white, showing how evenly it is distributed. This spray mixture comes well endorsed, and is worthy of a fair trial. Personally we know but little of its action or efficiency, and we would be pleased to learn the results from those who experimented with it.—("California Fruit Grower.")

ROYAL HORTICULTURAL SOCIETY.

DRILL HALL, JUNE 15TH.

For the first time since the great Temple Show the Committees met at the Drill Hall. The corresponding meeting of previous years has been small; but this was by no means so, for the hall was nearly full. Orchids were not numerous, neither were fruit nor vegetables.

FRUIT COMMITTEE.—Present: T. Francis Rivers, Esq. (in the chair); with Rev. W. Wilks, and Messrs. J. Cheal, J. H. Veitch, G. W. Cummins, A. F. Barron, Peter Veitch, J. Smith, T. Fife, H. Balderson, G. Wythes, G. Sage, T. G. Miles, A. Dean, F. Q. Lane, and J. Wright.

Several Melons were sent, but none reached the standard of quality entitling to a certificate. One from the Isle of Wight was quite rotten; a promising variety from Mr. Wythes not quite ripe; one from Dropmore decidedly over-ripe; several from Mr. Bishop, Westley Hall, very handsome; and one of them, Westley Defiance, a large, oval, well netted green-flesh, of beautiful appearance, not quite ripe; desired to be seen again.

Mr. Miller, gardener to Lord Foley, Ruxley Lodge, sent a small collection of fruits comprising Grapes, Cherries, and very handsome Royal Sovereign Strawberries; a bronze medal was granted. Mr. W. Palmer, Andover, sent good dishes of Peas of Sutton's A1 and Laxton's Gradus.

Several Cabbages were sent from Chiswick, and for two of them, Veitch's Earliest of All from Messrs. R. Veitch & Sons, Exeter, and Sutton's Earliest, Messrs. Sutton & Sons, Reading, awards of merit were granted. These were much earlier than any others, both ready May 15th. The first-named very dwarf and compact; the second mentioned somewhat larger, a beautiful conical or pyramidal variety with tender-looking hearts.

FLORAL COMMITTEE.—Present: W. Marshall, Esq. (in the chair); and Messrs. J. Fraser, A. Deah, J. Hudson, G. Nicholson, G. Gordon, J. Jennings, C. J. Salter, C. Jeffries, J. D. Pawle, C. E. Pearson, C. E. Shea, H. J. Jones, J. Walker, E. Beckitt, H. J. Cutbush, C. Blick, H. Turner, G. Paul, R. M. Hogg, and E. Mawley.

The Cannas sent by Messrs. H. Cannell & Sons, Swanley, made a bright display and included the majority of the leading varieties in cultivation. The same firm also sent Gloxinias Amiable and Sherlock Holmes. Messrs. W. Paul & Son, Waltham Cross, staged a few plants of the beautiful Rose Enchantress. Very interesting were the foliage and flowering plants sent by Messrs. J. Veitch & Sons, Limited, from their Coombe Wood nurseries. There were Viburnum Mariesi, Olearia stellulata, Azalea Mikado, Veronica prostrata, Nymphæas in variety, and several others. The exhibit from Messrs. Kelway & Son, Langport, of single and double Pæonies and Delphiniums was very imposing and of great interest.

Hardy herbaceous plants from Mr. M. Pritchard, Christchurch, were varied and beautiful. There were amongst others Pæonies, Centaureas, Irises, Spiræas, Aquilegias, Heucheras, and Achilleas. Messrs. R. Wallace and Co., Colchester, staged a collection of Spanish Irises, Liliums, Brodiaeas, and Calochortus, all of the best quality; Messrs. Dobbie & Co., Rothesay, N.B., exhibited Pyrethrums in considerable numbers, as well as Pelargoniums with Dahlias of good quality. Very charming was the exhibit of garden Roses sent by Messrs. G. Cooling & Sons, Bath. The diversity and excellent quality made the exhibit exceedingly interesting.

Strikingly beautiful were the Pæonies from Messrs. J. Veitch & Sons. There were dozens of distinct varieties, ranging from pure white to the deepest crimson. The whole of the varieties were double. Veitch's hybrid Aquilegias were very fine. Mr. C. Dymott, Millbrook Road, Freemantle, sent plants of Pelargonium Harry Dymott, a seedling of promise. Delphinium Belladonna, Potentillas, and Pæony albiflora carnea came from Mr. Gifford, Tottenham, and hardy flowers in variety from Messrs. A. W. Young & Co., Stevenage.

Messrs. Paul & Son, Old Nurseries, exhibited Pæonies and garden Roses in fair numbers and of splendid quality. The same firm also staged a small but very interesting collection of plants suitable for the rockery. Messrs. J. Peed & Sons, Norwood Road, S.E., sent a group of Carnations, comprising Miss Measures, Cole's Improved, and Mr. R. H. Measures. Messrs. F. Cant and Co., Colchester, staged garden Roses in their well known excellent style. There were Paul's Carmine Pillar, Austrian Copper, Mignonette, Janet's Pride, Lord Penzance, Moss, Austrian Yellow, and others.

Messrs. Barr & Son, King Street, Covent Garden, were represented, as they usually are, by a collection of hardy plants, including Irises, both German and Spanish, Delphiniums, Pæonies, and others. Mr. B. Ladhams, Shirley, Southampton, sent Pinks of fine quality, with a few beautiful Campanulas. Violas in variety, Pyrethrums, Irises, Papavers, Lychnis, and Geums were included in the stand arranged by Messrs. J. Cheal & Sons of Crawley.

Quality was conspicuous in the Carnations sent by Mr. C. Blick, gardener to Martin R. Smith, Esq., The Warren, Hayes. The varieties included Queen of Sheba, Barras, Cecilia, Quentin Durward, Wanderer, Helmsman, Perséus, Comedy, Cygnet, Amazon, Mrs. Tremayne, and Sappho. Mr. Chas. Turner, Slough, also sent fine Carnations, beautiful amongst which were Mrs. S. Bouverie, The Gift, Goldmine, May Queen, and Knight Errant.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair); with Messrs. J. O'Brien, De B. Crawshay, H. Ballantine, F. Sander, H. Williams,

W. H. White, E. Hill, J. T. Gabriel, A. H. Smee, W. H. Young, H. J. Chapman, S. Courtauld, J. Douglas, and T. B. Haywood.

The only exhibit of Orchids of any size was that from Messrs. J. Veitch and Sons, Ltd. Not only was this admirably arranged, but it contained nothing but plants of the best quality. Amongst the *Cypripediums* were *Curtisi*, *Lawrenceanum*, *selligerum majus*, and *superbiens*. *Lælias* were also splendid, while *Odontoglossums*, *Dendrobiums*, *Sobralias*, and *Masdevallias* lent pleasing variety (silver Flora medal). Mr. W. H. White, gardener to Sir Trevor Lawrence, Bart., sent a few Orchids, including *Vanda Agnes Joachim*, *Phalaenopsis grandiflora*, and *g. odorum Augusti*.

Mr. W. H. Young, Orchid grower to Sir Frederick Wigan, Clare Lawn, East Sheen, sent a few Orchids, of which *Lælio-Cattleya Orphanum*, *Cattleya Mossiæ*, Mrs. Egerton Grey, and *Miltoniæ vexillaria candida* were conspicuous. Messrs. F. Sander & Co., St. Albans, sent three plants only—namely, *Lælio-Cattleya Empress of India*, *L.-C. Our Queen*, and *Cattleya Mossiæ Empress of India*.

CERTIFICATES AND AWARDS OF MERIT.

Calochortus Gunisoni (R. Wallace & Co.).—A beautiful pure white form of high quality (award of merit).

Carnation Barras (C. Blick).—The petals of this variety are superb. The colour is scarlet crimson, and the flower is sweetly scented (award of merit).

Carnation Cecilia (C. Blick).—A magnificent flower, unfortunately lacking fragrance. The colour is yellow (award of merit).

Carnation Helmsman (C. Blick).—A pure white, of perfect form and large size. The flower is Clove-scented, and the calyx shows no tendency to split (award of merit).

Cattleya Mossiæ In Memoriam Richard Curnow (H. Low & Co.).—A magnificent *Mossiæ*. All the organs are very large and substantial (award of merit).

Cattleya Mossiæ Empress of India (F. Sander & Co.).—A superb form. The colour is purplish rose in the sepals and petals, and the lip crimson purple (award of merit).

Cedrus atlantica aurea (J. Veitch & Sons, Ltd.).—This golden-tip variety of *atlantica* is very charming (first-class certificate).

Celmisia Monroi (J. Veitch & Sons, Ltd.).—A hardy plant with Pine-like leaves and large white Marguerite-like flowers (first-class certificate).

Delphinium Clara Stubbs (Kelway & Son).—Very bright blue is the colour of this variety (award of merit).

Delphinium Sir John Forrest (Kelway and Sons).—The flowers of this are rich blue purple and very large (award of merit).

Doryopteris nobilis Duvalli (J. Veitch & Sons, Ltd.).—A very handsome-leaved Fern with deep green foliage (award of merit).

Escallonia langleyensis (J. Veitch & Sons, Ltd.).—Very free flowering is this hybrid. The blooms are bright rose in colour (award of merit).

Iris germanica maxima (T. S. Ware).—A fine variety, of which the standards are light and the falls dark blue (award of merit).

Lælio-Cattleya Our Queen (F. Sander & Co.).—This is a lovely bi-generic hybrid, of which the parentage is not known. The sepals and petals are white, with the most delicate blush suffusion. The lip has a white margin round the large patch of crimson. The throat is yellow (award of merit).

Lælio-Cattleya Empress of India (F. Sander & Co.).—The parents of this were *Lælia purpurata Brysiana* and *C. Dowiana*. It is of great beauty. The sepals and petals are deep purplish rose, and the lip velvety crimson maroon (award of merit).

Odontoglossum crispum Crawshayanum (De B. Crawshay).—The rather narrow sepals and petals of this variety have fine chocolate blotches on the white ground (award of merit).

Pink Albina (F. Gifford).—A white variety with Clove-scented blooms. The calyx seems inclined to split (award of merit).

Rose macrophylla (Paul & Son).—A charming flower of soft rose shade (award of merit).

Vanda Agnes Joachim (W. H. White).—A lovely hybrid, resulting from a cross between *V. teres* and *Hookeriana*. The petals and upper sepals are delicate rose, and the lower sepals white. The lip is purplish rose (first-class certificate).

LIST OF AWARDS.—Floral Committee.—Silver Flora medals to Messrs. J. Peed & Son, J. Veitch & Son, Ltd., R. Wallace & Co., Kelway & Son, M. Pritchard, and H. Cannell & Sons. Silver Banksian to Messrs. Paul and Son, S. Cooling & Sons, Dobbie & Co., F. Cant & Co., B. Ladhams, and J. Cheal & Sons. Bronze Banksian to Messrs. A. W. Young & Co.

A BIG VINEYARD — A recent issue of the New York "Fruit Trade Journal" gives an account of a newly planted Grape fruit grove in Florida, said to be the largest in the world. The soil is virgin hummock land, which, within a year, was cleared of massive Oak and graceful Palmetto trees, and comprises above 200 acres. The tract extends half a mile along the Manatee River, and is more than that distance in depth. The land was thoroughly prepared by experienced cultivators of Grape fruit, and 20,000 budded trees of the best varieties have been planted.

THE YOUNG GARDENERS' DOMAIN.

SUMMER BEDDING.

I HAVE often noticed in my experience how many gardeners have the same designs in the flower garden year after year, without any perceptible change. Let us try and alter this everlasting sameness, and by tasteful arrangement have something fresh every season, and always better than the last. I remember well the first situation I had; the flower garden was a model of neatness and cleanliness that I have not seen equalled since; its only fault was in being always the same. Year after year the same plants and designs appeared, as though the gardener had reached a certain point in horticulture and dare not move another step.

During a visit to my old friend last summer, after an absence of some years, we went to view the flower garden; it seemed to me but yesterday that I had been there. Yes, there it was, the same well-kept garden with the beds of *Calceolaria Golden Gem* edged with dark-leaved Beet; *Vesuvius Pelargoniums* with an edging of the *Lobelia*; beds of *Ageratum Little Cupid* with a golden edge of *Pyrethrum aureum*. And how well I remember that design in the Maltese cross beneath the drawing-room window: there is the large *Agave americana* in the centre, surrounded by Mrs. Pollock *Pelargonium*, two of the sides filled with *Tropæolums*, the other two with *Verbenas*. It was a splendid display for a stranger to see, but how tiring to the eyes of those who have seen it for so long. It will be changed this season, as my dear old friend, the kindest master I ever had, has gone to join the great majority.

There is a plan I have always followed, and I advise all young gardeners in the domain and out of it to do the same, and if they derive as much pleasure from it as I have done my note will not have been in vain. I always make it a rule to draw a plan of the flower garden every season, no matter where I am stationed, and note down how every bed and border is arranged. Then in the long nights of winter I bring out these plans, draw the outlines of another, and fill in the beds from imagination with what is thought will have a good effect; then compare it with the real plan and see if I have made any improvement.

For instance, here in the rough sketch before me is a large diamond-shaped bed; at the time of drawing, the bed was filled entirely with yellow *Calceolarias*, and after a spell of wet weather they looked anything but ornamental. How would it look arranged in this manner? In the centre one *Ricinus Gibsoni* with four more arranged diamond shape a good distance from it; intersperse some *Hyacinthus candicans* and *Lobelia cardinalis*; round these run a belt of *Salvia patens*, followed by another of *Begonias*, and then finish with an edging of *Dactylis glomerata aurea*. I could suggest more methods, but space forbids.

Before I finish let me advise that in the summer garden foliage and flowering plants be intermixed, so that one may support the other in wet weather and in dry. Dig well, manure well, put out plants few and good rather than numerous, drawn, and weakly. Note the defects of this year's arrangements for correcting another season. Keep your ears open when visitors come, and your eyes when you go visiting, and so obtain and lay up a store of knowledge for use hereafter.—J. C., Lancashire.

[Very good advice, and worthy of being kept in remembrance.]

GROWING MELONS IN FRAMES.

THOUGH now superseded by the modern and more excellent method of cultivation in hothouses, Melon growing in frames is still carried on on a very large scale during the favourable months of the year—viz., May to September. Mention is made of these months because in most gardens the frames intended for Melons are occupied until the end of May by bedding plants, early Potatoes, or other requisites, and also because Melons remaining in frames after the end of September are mostly deficient in flavour. As soon, however, as the frames are clear they should be made ready for the reception of the Melons without delay.

Make a bed of fermenting material such as horse stable refuse and tree leaves, large enough to project 2 feet beyond the frame on all sides, and 3 to 4 feet high; place the frame thereon, and build up the 2-feet walls or linings to the top of the lights to allow for sinking. In the case of walled pits material will, of course, only need to be placed inside.

Place in each light one or two mounds of about a barrowload each of the following compost:—Good retentive loam eight parts; brick rubble, broken small, one part; soot and bonemeal one part, the top of the mounds, after sinking, being about 15 inches from the glass. Leave the whole until the heat declines to about 80°, when the plants may be put out. Seed sown singly in 2-inch pots the last week in April and the first week in May in the Melon or Cucumber house, the plants being gradually hardened, will produce sturdy plants with four or five leaves by planting time.

In planting Melons always raise the collar of the plants well above the soil in order that water may easily drain away from the stems, otherwise canker may occur, to which fungoid disease Melons fall an easy prey. It may be prevented by placing around the stem at planting time a few pieces of charcoal, which absorb superfluous moisture, also at the same time place a ring of lime around the plants, 9 inches from them, as a guard against slugs. Should canker show itself, promptly rub the affected parts with freshly slaked lime. Given a good watering at planting time the syringe will suffice for the next fortnight.

As soon as the roots have taken hold of the new compost top the plants, which will result in some four or five growths from the axils of the leaves. Select two in the case of two plants being placed in a light, four growths in the case of one plant only, and train to the four corners of the frame. When about a foot from the corners top these growths, the result being numerous laterals, from which we may expect to get our fruit; should these, however, fail to show fruit after the second leaf top them, when the sub-laterals near the stem will be sure to produce flowers.

Another method is to allow the leader to run to the end of the frame before topping it, and taking the fruits from laterals produced from the main stem. Both methods are good. Before the flowers open give a liberal watering, which will suffice to carry the plants over the setting period. Maintain a dry atmosphere whilst the plants are in flower. If the growths were well selected in the first place no difficulty will be experienced in having sufficient fruit-bearing flowers open at one time to produce a crop. These should be fertilised just before noon by pollen applied to the stigma from the staminate flowers, and top the laterals two leaves beyond the fruit.

It is important that the whole of the crop be, if possible, set at the same time, as if one or two fruits commence swelling before the rest they are sure to take the lead, and the others will either shrivel, or make at the best but poor specimens. In such a case it is better to sacrifice one or two early fruits, and retain a later crop all of uniform fruits. When the fruits are swelling freely thin to the required number, leaving such as are a good distance from the collar of the plants, placing each one carefully on an inverted flower pot.

Water will be required much more frequently when the fruits are swelling, always giving it in a tepid state, and in sufficient quantity to penetrate the whole mass of soil. Weak liquid manure at each watering will help the fruits to attain a large size; it must be discontinued, however, when the fruits commence ripening.

Ventilate carefully, providing a "chink" for air, if possible, before the sun has reached the frames, in order to dry the fruits before the sun can do any harm. When it is seen the fruits are commencing to net air must be admitted more abundantly, leaving a chink on all night; discontinue syringing now, and gradually withhold water from the roots, giving only sufficient to prevent the plants flagging. Should the fruits show signs of cracking, the laterals bearing them may be partly severed to check the flow of sap. The flavour of Melons is much improved by placing them in an airy fruit room about three days before sending to table.—YOUNGSTER.

A SHORT ACCOUNT OF THE CULTIVATION OF DENDROBIUMS.

DOUBTLESS some readers will wonder why I have placed a "short account" at the head, but to go into all the minor details of the cultivation would fill several columns of this Journal.

The method of cultivation differs according to the species, as some of them require a higher temperature, both to mature their growths, and to flower them in, than others. The following "short account" refers to the "mobile" section.

If a start is being made with imported bulbs, first hang them up in a warm, moist house, in a position shaded from the sun. An ordinary plant stove, with a temperature ranging about 70°, will do for them. If they are syringed three or four times during the day, the young roots and growths will soon begin to show themselves. When these appear, the plants may be placed in either pots, pans, or baskets, the latter being the more suitable. Whatever receptacle is used should be thoroughly clean, and as small as possible, according to the size of the plant.

Fill them three parts full of crocks, and over the crocks place a layer of sphagnum moss. The material for potting should be fibrous peat broken into lumps, charcoal, and fresh sphagnum. It is not necessary to mix them previously, but the different kinds may be placed in the pot separately as required. The plants should be placed on a cone above the rim of the pots, and great care must be taken not to injure the young roots and growths that are just forming.

Water must be sparingly applied until the roots have got hold of the compost, and then more copiously as the growth advances. It is very dangerous to allow them to become dry. Rain water heated to the temperature of the house is the most suitable for them. If dipping the plants is resorted to, care must be taken that they are not plunged below the base, or the young growths are liable to be injured.

During the growing season they may be placed as near the glass as possible without coming in contact with it, so that they may obtain plenty of light, but they must be shaded from the bright sun. Syringing frequently between the pots is beneficial, but if the plants are syringed heavily the water will lodge in the nodes and cause the leaves to turn yellow. The paths of the house ought to be kept well damped, and if the pipes are fitted with evaporating troughs these should be kept filled. Occasional fillings with weak liquid manure is beneficial to the plants.

When the growth is completed water must be gradually withheld, and the plants arranged in a cooler and drier atmosphere, allowing them abundance of air and full exposure to the sun, so that they may complete the ripening of the growths. Water must not be withheld altogether, but enough given to prevent shrivelling. After the growths are fully matured a few plants may be placed in a gentle heat to produce early flowers, giving them a small quantity of water, or they will push forth growths instead of flower spikes. By placing a few in heat at different periods a succession of flowers may be had from December to the end of March.

After the plants have ceased flowering, they may be repotted, using

the same material as mentioned for those imported. The main point when potting is to remove them out of one pot into the other without injury to the roots; and this done by breaking the old pot or pan into small pieces. Each piece should be removed separately, allowing those only to remain which have roots adhering to them, and these will help to serve as crocks. In the case of baskets, the old ones should not be removed, but placed in the larger size intended for the plant.

If more plants are required they are easily obtained by division or by cutting off some of the pseudo-bulbs after flowering and laying them in pans filled with sphagnum moss. If these are kept moist they will soon commence making growths at the nodes, and when large enough to be removed may be placed three or four in a 5-inch pot.

Red spider is the worst enemy of the Dendrobium, and when the pest appears the leaves should be sponged with a weak insecticide.—ELVEDEN.



HARDY FRUIT GARDEN.

Strawberries.—The copious rains have improved the prospects of the Strawberry crops. Plants, however, swelling good crops of fruit will be greatly assisted by applications of water or liquid manure. The latter stimulant is especially suitable to apply after the ground has been moistened by rain, because the soluble food principles contained therein will be, when combined with the soil moisture, readily appropriated. Should a dry period set in as the fruit is swelling clear water may be freely given, followed by liquid manure. When it is not available the liberal waterings over the manurial mulching will carry down to the roots beneficial sustenance. Where the mulching material is not of a character to keep the ripe fruit clean fresh straw should be laid down, this either being in long lengths or cut very short.

Propagating Strawberries.—Early propagation is desirable when it is necessary to establish beds to produce a fair crop the next season. A few of the best runners from each fruiting plant may be selected, and the first or best plantlet preserved for rooting into a suitable medium. The methods adopted for insuring well rooted plants are the employment of small pots or squares of turf.

When pots are used, those 3 inches in diameter are the handiest. Press into the bottom a piece of fibrous turf. Fill up the remaining space with good rich material composed of loam and decomposed manure. Partly sink the pots into the ground at convenient places between the rows. With a hooked peg or a stone secure in each pot a strong plantlet just emitting roots. Cut off the growths beyond, also all the remaining runners on the parent plants which are not required.

The turf system requires that small turves about 2 inches thick and square, should be cut while the grass is fresh, though if long it may be cut in closely. If the weather is dry soak them well in water or liquid manure. Take out a small trench between the rows of plants if convenient, or sink the squares in the soil at any suitable point, placing them grass side downwards. Hooked wire or wooden pegs must be employed to attach the plantlets firmly until roots are emitted. Stopping the growths beyond the plantlets, and the removal of superfluous runners must be attended to. The young plants ought to have every facility for becoming strong and well rooted, which they will do if not allowed to be crowded with weeds and a rank growth of runners. During the prevalence of dry periods water must be regularly supplied. Those in pots will specially need attention, sometimes requiring it twice a day.

Wall Trees.—Thinning Fruit.—Give the final thinning to Apricots, Peaches, and Nectarines if the fruits are so thickly placed as to require the removal of some. Select the largest and best placed for retaining, leaving the fruits finally 5 to 8 inches apart, according to size of variety and vigour of trees. A little thinning may also be given to Apples and Pears, removing all but the best fruits on a spur. The final thinning of these may be carried out later.

Syringing and Watering.—A moist condition of the soil about the roots and frequent syringing of the foliage in dry warm weather will tend to keep red spider and aphid in check. Occasional applications of liquid manure to weakly trees, or those bearing good crops which may require assistance to finish well, are desirable.

Laying in Shoots.—Attention given systematically to laying in the reserved young growths of Apricots, Peaches, and Nectarines is well repaid by the better appearance of the trees, and the facility with which abundance of light and air can reach the young growths. The fruit also benefits largely because the resources of the trees are not drained by superfluous shoots. Growths that cannot be laid in, and which it is not advisable to cut out, shorten back to the third leaf to form spurs, subsequent growth from the upper buds of these being pinched at the first leaf.

FRUIT FORCING.

Peaches and Nectarines.—Early Forced Trees.—The trees must now have plenty of air, ventilating the house to the fullest extent after the fruit is gathered, removing the roof lights; in addition to ventilating fully, the border should be frequently damped and duly watered, so that no check is given likely to induce the premature ripening of the wood and foliage. Laterals encourage root action, but they must be stopped to prevent overcrowding, otherwise some lateral extension is desirable as a safeguard against the wood and foliage maturing too early. All shoots that have borne fruit, and which are no longer required, should be cut away to the growths originated from their base for next year's bearing.

Houses with the Fruit Ripening.—The trees started early in February have the fruit advanced for ripening, and this must be kept dry. With a view to prolonging the season of fruit, fire heat may be discontinued, unless the weather be unusually cold, and air admitted freely by day and night, maintaining adequate moisture at the roots. Where it is not wished to retard the fruit, maintain a night temperature of 60° to 65°, and 70° to 75° by day; free ventilation will enable the fruit to swell freely, and develop good flavoured specimens, allowing a rise of 10° to 15° from sun heat. Keep water from the fruit, but the floors and other available surfaces should be damped, so as to afford a certain amount of atmospheric moisture for the benefit of the foliage. Water at the roots must be given both to the inside and outside borders, and a light mulching of rather short, lumpy material will lessen the necessity for it, and encourage surface roots.

Trees Swelling the Fruit.—In houses that were started in March, or where the fruit is taking the last swelling after stoning, syringe vigorously to keep down red spider. If the trees need support, supply liquid manure or water through a good mulching of short manure, sprinkling a handful of some approved fertiliser to a square yard before watering. Admit air early and in plenty with rising temperature, and insure the fruit swelling to a large size; close early with abundance of atmospheric moisture, allowing the heat to rise to 85° to 90° or more afterwards. Turn the fruit with its apex to the light, and draw the leaves aside or shorten them, so as to admit light and air to the fruit, and thereby secure its even ripening. Keep the shoots well but not too closely tied down, pinch the laterals back to the lowest leaf, thinning out the growths where crowded, and remove superfluous shoots.

Gathering Peaches.—Great care is necessary in removing the fruit. The least pressure makes a mark and spoils its appearance. A piece of wadding should be held in the hand and the fruit removed by gentle pressure, then laid carefully in a padded shallow basket. The fruit intended for packing should be gathered before it is dead ripe. Morning is the best time to gather the fruit, and it should be placed in a cool room to mature before being sent to table. In bright weather the trees should be looked over in the evening as well as morning for the removal of the ripe fruit.

Late Houses.—The fruit should be thinned to the quantity required for the crop, or a few more may be left than will be required, to allow for casualties in stoning. Syringe morning and evening in fine weather, but avoid syringing on dull days and on mornings when moisture has been condensed and hangs on the margins of vigorous trees in the early morning. Admit air early and freely. Mulch inside and outside borders with short manure, and supply water abundantly. Shoots not required for next year's crop, and those not needed for furnishing the trees, should be removed. Keep laterals closely pinched, and cut away gross shoots. The shoots on young trees should be left about 15 inches apart for next year's bearing, and if they are disposed to elongate above 18 inches they may be pinched to 12 or 15 inches; stopping the laterals at the first leaf, but extensions or main shoots should be allowed to grow their full length, provided they are evenly balanced and there is room. Avoid laying-in the growths too thickly; the branches should be 9 to 12 inches apart, and these should be as evenly balanced as possible.

Vines.—In Pots.—Stop the canes when from 6 to 8 feet long, pinching the laterals and sub-laterals at one joint as produced. This applies to Vines intended for fruiting next season. Those intended for planting may be allowed to make all the growth, and be cut back to two or three eyes or the length required at planting time, or when leafless.

Vines Cleared of their Crops.—Syringe occasionally to keep the foliage clean, afford water to render the soil moist. A mulching of short manure will prevent the soil cracking, and the moist surface will keep the roots from going down. Allow a moderate extension of the laterals, and admit air freely above 60°. There is no fear of the wood not ripening, and the difficulty will be to prevent the premature ripening and fall of the foliage.

Houses of Ripe Grapes.—These will be the better for slight shade from powerful sun. Some pilchard or double thickness of herring nets drawn over the roof-lights will mostly be sufficient shade, and a good spread of foliage will assist Black Hamburgs in keeping their colour. Moderate air moisture will not injure the Grapes if accompanied by free ventilation. Keep laterals fairly under, but a little extension will assist in the retention of the principal leaves, and upon their continuance in health depends the maturity of the buds for next year's crop.

Grapes Ripening.—When the Grapes begin to change colour admit a little air constantly, with sufficient heat in the pipes to maintain a night temperature

of 65°, 70° to 75° by day, with 80° to 85° or 90° through the day from sun heat. Avoid an arid atmosphere, damping occasionally, and do not allow the border to become dry. Vines ripening heavy crops will be assisted in perfecting them and storing food for the future by an occasional application of liquid manure. A light mulching of dry spent material will assist the Vines by securing uniform moisture, and thus keeping the roots near the surface, whilst avoiding excess of moisture, and thus preventing cracking. It is a confined and stagnant atmosphere that does most of the mischief in Grapes cracking and spotting.

Late Grapes.—Thinning.—Thin well to secure large and highly finished berries; such varieties as Gros Colman and Gros Guillaume about an inch apart, the oval-berried varieties not requiring as much room as the round ones, but all should be so thinned that they will have room for swelling fully without wedging, and yet be so close that when dished the bunches will retain their form. Loose bunches that show the footstalks are not so pleasing, however fine the berries, as those more compact. Shy setting varieties are often thin of berries through the number of stoneless ones that must be removed, to guard against which no pains should be spared in getting the wood ripe and in fertilising the bunches when in flower with Black Hamburgs. A pound of Grapes per foot run of rod is usually as many as Vines ordinarily finish well, therefore reduce the bunches so as to give about that weight.

Regulating the Growths.—Avoid large reductions of foliage at a time, it only tends to induce shanking through the check given to the roots. Keep the growths tied down from the glass, and so prevent scorching. Allow as much lateral extension as can have exposure to light, but the foliage should be rather thinner in the case of white Grapes than in black; this more particularly applies to Muscats. Always take care that the laterals do not encroach on the principal leaves.

Temperature and Ventilation.—Maintain a night temperature of 65°, and 70° to 75° by day in dull weather. Admit air early, providing a little at the top of the house constantly, increasing the ventilation with the temperature, allowing an advance to 85° or 90°, at which keep through the day from sun heat, reducing the ventilation with the declining sun. Close at 85°, damping the paths well then, and again before nightfall. Avoid cold currents or sudden depressions of temperature, as they cause rust and favour the spread of mildew.

THE BEE-KEEPER.

EARLY SWARMS.

"BEE Notes from Devon" (page 492) are interesting to bee-keepers in the midland and northern counties as showing the forwardness of bees, as well as vegetation, for which that delightful county is noted. At the date bees were swarming there they were clustered in their hives in South Yorkshire owing to the cold weather and high winds that prevailed at that time. "A. G." is to be congratulated on the forward condition of his bees, and for the promise of a glorious harvest from the fruit trees and white Clover.

"S. T., Gloucestershire," writing on June 5th, says, "On May 22nd I found the bees from one of my hives hanging out in a cluster at the entrance; I at once supered them. In spite of that they swarmed yesterday, and to-day I took off fourteen well-finished sections. I left in the others that were not quite sealed over, and filled the crate with empty sections. Bees are now doing well; 80° in the shade to-day." Had the above stock been supplied with another crate of sections a week after the first one was placed on the hive, as advised in previous notes, they would probably not have swarmed, but have continued storing honey during the spell of hot weather, attention being also given to shade and ventilation.

The first swarm in this district came off at 6.30 on the morning of 22nd May, and flew nearly a mile away, and was clustered before seven o'clock. It is not often bees swarm so early in the morning, but the old stock being in a straw skep, in a warm spot where the sun shone directly on the hive, caused them to leave. It is not usual for first swarms to fly so far before alighting.

The above were hived into a straw skep of medium size, and allowed to remain where they alighted. Ten days afterwards I examined them, and found the skep full of beautiful white combs, and crowded with bees; these were placed in a frame hive, and the skep placed on the top as a super, and as the bees are hatched the cells will be filled with honey, which will be in good condition owing to the newness of the combs.

As the above mentioned swarm was so much in advance of others in the district, I inquired the history of the original stock, and found they were in a straw skep, which did not swarm last season, neither was there any honey taken from it, and being in a warm dry place and wintered on natural stores was doubtless the cause of them being extra strong in bees this spring.

SWARMING *versus* NON-SWARMING.

This is a much-debated question. Under the old-fashioned system of keeping bees in straw skeps swarming was universal, and bee-keepers, in speaking of their success or failure, usually spoke of the number of swarms they had; and as a rule, the earlier the swarms were obtained, if the season proved favourable, the greater the surplus stored. If the chief honey harvest is obtained from the Heather, there would be no harm in allowing the bees to swarm, even under the modern system.

It could, however, be done artificially, instead of leaving it to chance. But where the honey harvest is obtained from early spring flowers, and finishes with the White Clover and Limes, and no second harvest from the Heather, I cannot see the advantage of the swarming system, as all the energies of the bees are required in raising brood and storing sufficient for their daily requirements, so as to derive full benefit from the honey flow when it comes, as it lasts but a short time.

If extra room is provided when required in the frame hive, and a system of rearing young queens is carried out, the non-swarming system is preferable; but where bees are kept in straw skeps, and there are some cottagers who will keep them in no other, then the swarming system is advocated in preference to any other.—AN ENGLISH BEE-KEEPER.

TRANSFERRING STOCKS.

I HAVE an old stock of bees in a straw skep, which I wish to shift into a bar-frame hive. Could I do so now without much loss? and if so would driving be the best method to follow?—H. SHAPLEY.

[Allow the bees to swarm, and place the swarm in the frame hive, using guide comb or full sheets of foundation in the frames. The latter is preferable, as much valuable time is saved. The bees remaining in the straw skep will rear a young queen. These should be driven from the skep at the end of the season, and if only one stock is required remove the queen from the swarm and unite with the driven bees. The colony will then be headed by a young fertile queen.

If the bees show no sign of swarming drive them in the usual manner until the queen is seen to go up into empty skep. This is important, otherwise it will end in failure. The frame hive being in readiness, and the frames prepared as above, shake the bees and queen into the hive, and place a piece of excluder zinc on the top of frames on which the skep containing bees and brood should be placed.

The queen will thus be kept in the body of the hive, and will fill the combs with eggs, whilst the workers will attend to the hatching brood in the skep. Three weeks afterwards the brood will have all hatched in the skep, when the skep may be removed, and a crate of sections or shallow frames be given instead. The skep may be allowed to remain as a super, but the honey will not be in as good condition as when stored in sections.—AN ENGLISH BEE-KEEPER.]

TRADE CATALOGUE RECEIVED.

Ant. Roozen & Son, Overveen, Haarlem, Holland.—*Dutch and Cape Bulbs.*



All correspondence relating to editorial matters should, until further notice, be directed to "THE EDITOR," 8, Rose Hill Road, Wandsworth, London, S.W. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense, and departmental writers are not expected to answer any letters they may receive on Gardening and Bee subjects, through the post. If information be desired on any particular subject from any particular authority who may be named, endeavour will be made to obtain it by the Editor.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot, as a rule, reply to questions through the post, and we do not undertake to return communications which, for any reason, cannot be inserted.

English Asparagus (J. D., Sussex).—The wholesale prices of this delicious vegetable vary from day to day in Covent Garden, according to the supply and character of the produce. On the 15th inst. the best Middlesex "grass" ranged from 3s. 6d. to 4s. a bundle of not less than 105 heads, produce from some other districts selling from 1s. to 2s. The best of everything pays the best, and when this or any other vegetable "makes nothing," it is either because the samples are inferior or sent at the wrong time. First-class Asparagus seems to be always in demand.

Pyrus Aria Propagating (J. C.).—This is the name of your flowering shrub. It may be raised from seeds, which usually remain dormant until the second year; by layers, which should be made in autumn, and notched at a joint, securing with a peg so as to keep the tongue open; and for standards by budding or grafting on the Mountain Ash, at the height required.

Azalea mollis Hybrids (L. K.).—The list given below contains some of the best varieties yet raised. They produce very large trusses of flowers, in unique and beautiful shades of colour not easy to correctly describe. We should also advise you to obtain a few unnamed seedlings, as something good is invariably found among them. Charles Rogier, Edison, Esmeralda, Frederie de Mérode, Général Brialmont, Gloire de Belgique, Henry Conscience, M. Desbois, Mignon, Oswald de Kerchove, Prince Baldwin, and Souvenir de Louis Van Houtte.

Fadyenia prolifera (L. S. E.).—This curious little Fern requires the temperature of an ordinary exotic fernery, or the cool end of a moist stove. It succeeds in a compost of peat and sand, with abundant drainage, a wide shallow pan being best suited for it, as the long narrow fronds can then extend freely. When the young plants are produced at the point they will soon root in the soil, and may be either separated or allowed to remain, the latter being generally preferred, as they impart a peculiar appearance to the plant. It is usually found advisable to cover the plant with a bell-glass to preserve an equable temperature and moisture about it.

Cucumber Culture (Mancunian).—The culture of Cucumbers is dealt with from time to time under the heading of "Fruit Forcing." The following brief hints will, however, be of assistance to you:—Turfy loam, inclining to be heavy rather than light, chopped up roughly, and about a sixth part of sweet decayed manure mixed with it (not rank manure) will form a good rooting medium. If you can add a shovelful or two of crushed lime rubbish and wood ashes to a large barrowful of the compost do so, but they are not essential. A temperature of 65° at night, rising to 90° in the day with sun, also plenty of moisture in the air and the soil, will promote rapid growth. A dry atmosphere favours insects, and dry soil arrests growth. Unless the male flowers are very numerous and the fruiting flowers sparse you need not trouble yourself about the former. Secure sound healthy growth, with the leaves fully exposed to the light, and good crops of Cucumbers will follow.

Cephalotus follicularis (S. E. W.).—This pretty and interesting little plant is a native of Australia, where it was first discovered by Labillardière, who described and figured it; subsequently Mr. Robert Brown also found a specimen during his voyage with Captain Flinders. It was first cultivated in England about 1822, and is now by no means a rarity. The plant is remarkable in several ways, for it is the only species of the genus, and is considered sufficiently distinct to constitute a natural order (allied to the Polygonums), and we thus have the peculiarity of a family composed of one individual. In the leaves, too, we find another singular feature—some are flat and elliptical in form, while others are converted into extremely neat and pretty little pitchers or aseidia, somewhat resembling those of Nepenthes, only much smaller. They are dark green with a purplish shading, and pink veins, and are furnished with small lids, the mouth of the pitcher being bordered with a dark-coloured furrowed ring. This Cephalotus is an inhabitant of marshy land; it should therefore be provided with a soil composed of peat and live sphagnum moss, the pot being well drained and placed in a shallow pan containing water. If the plant is grown in a pan, that should be placed inside another larger one, the space being filled with fine Derbyshire spar and kept constantly moist. In either case a bell-glass should be placed over the plant. The best position and temperature is the cool end of the stove or Orchid house, where with careful attention in supplying the requisite moisture the plant will grow freely.

Holly Leaves Blistered (Subscriber to "our Journal" for nearly Twenty Years).—The Holly leaves are much disfigured by the irregular pale blotches on the upper surface, which gives them a blistered appearance. These are spaces mined in the green cellular tissue, and are the work of the larvæ of the Holly leaf fly (Phytomyza Illeis). Commonly, two or three larvæ are to be found in a leaf, each in its own mine. They are about one-tenth of an inch in length, yellowish-white, with a dark brown or black mouth. The small, oval, brown-ringed pupæ may be found in the mine in the winter, where they remain until the early summer, and then emerge in the perfected form. This is a two-winged fly, black, with pale yellow proboscis, except the black palpi and hairs. The most successful plan, next to destroying the insects by removing the mined leaves and burning them, which we do not advise, as it greatly weakens the trees (and must be done whilst the insects are in them, which they are not now), is to syringe the trees with a solution of soluble petroleum, which may be readily made by dissolving 1½ lb. of soft soap in a gallon of water by boiling, and when dissolved remove from the fire for safety, adding at once 2 gills (half a pint) of petroleum, stirring briskly till amalgamated, and dilute to 10 gallons for use by adding the required amount of hot water, but not using till cooled to 90° to 100°. It should be applied at the end of May or early in June as a preventive of attack. We have used it during attack with good results, as the petroleum seems to sink into the mined portion of the leaf, and destroys the pest in the mine.

Soil in Which to Sow Seeds (Tyro).—Exact proportions of loam, leaf soil, and sand cannot be given without knowing the nature of the loam. Obviously sandy loam does not need half the quantity of sand added that is requisite in strong or clayey loam, and similar remarks apply with reference to leaf soil. As a rule rather strong loam may have an equal quantity of sifted leaf soil added, and about a tenth part of sand, or more if the loam is sandless. Assuming seeds are good much more depends on the depth they are covered and uniformity of moisture than on any particular proportions of soil ingredients.

Plunging Greenhouse Plants (Novice).—Many greenhouse plants may be placed outside with advantage during the summer months, such as Camellias, Azaleas, Tea Roses, Callas, and Cytisuses after their growth is made. The pots require to be plunged, so that the roots which cluster round the sides of them may be kept in a cool moist condition; for when the pots are exposed to the full blaze of the summer sun the soil is rapidly dried, as well as heated, to an extent which causes destruction to the young active roots, to say nothing of the greater necessity for more frequent supplies of water. Plunging provides against all this, and should always be practised. The very best material to plunge the pots in is ashes. Plunging in garden earth is commonly practised; but it is not a good plan, for worms find their way into the pots, to the detriment of the roots and injury to the plants. Worms do not pass readily through ashes, and therefore these should be chosen for the purpose.

Propagating Scarlet Honeysuckle (E. C.).—All the "creeper" Honeysuckles, which, of course, include the Scarlet Honeysuckle (*Lonicera sempervirens*), are mostly grown from dormant cuttings—that is, the ripened growths of the current year are cut transversely below a bud or joint, and the cuttings, 6 to 8 inches in length, inserted in sandy soil two-thirds of their length, pressing it firmly about them, and watering to settle it. This is usually done under a hand-light or frame in a sheltered situation, the cuttings being inserted in the early autumn, generally at the end of September or early in October. Some take the cuttings with a heel—a small portion of the preceding year's wood—selecting stubby growths. The cuttings will callus during the winter, and start into growth in the spring, when they may be lifted carefully and potted singly, or left until the following autumn. Layers are also had recourse to, which is a sure method. The layering should be done in the autumn, making choice of firm young wood and placing at least one joint in the soil about a couple of inches deep. This may be done in a plunged pot, and the following autumn the layer will be well rooted, detached from the parent.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seeds and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass, or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*Dianthus*).—1, *Salisburia adiantifolia*; 2, *Abies orientalis*; 3, *Abies Tsuga*; 4, *Taxodium sempervirens*. (*H. D.*).—1, *Cercis siliquastrum*; 2, *Ercilla spicata*; 3, *Lilium pyrenaicum*.

COVENT GARDEN MARKET.—JUNE 16TH.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ sieve	0	0 to 0	Lemons, case	11	0 to 14
Filberts and Cobs, per 100 lb.	0	0	St. Michael Pines, each ..	3	0
Grapes, per lb.	1	6	Strawberries, per lb. ..	1	6

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, per 100 ..	0	0 to 0	Mustard and Oress, punnet	0	2 to 0
Beans, $\frac{1}{2}$ sieve	0	0	Onions, bushel	3	6
Beet, Red, dozen	1	0	Parsley, dozen bunches ..	2	0
Carrots, bunch	0	3	Parsnips, dozen	1	0
Cauliflowers, dozen ..	2	0	Potatoes, per cwt.	2	0
Celery, bundle	1	0	Salsafy, bundle	1	0
Coleworts, dozen bunches	2	0	Seakale, per basket	1	6
Onion, dozen	0	4	Scorzoner, bundle	1	6
Endive, dozen	1	3	Shallots, per lb.	0	3
Herbs, bunch	0	3	Spinach, pad	0	0
Leeks, bunch	0	2	Sprouts, half sieve	1	6
Lettuce, dozen	1	3	Tomatoes, per lb.	0	4
Mushrooms, per lb. ..	0	6	Turnips, bunch	0	3

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Arbor Vitæ (various) doz.	6	0 to 36	Fuchsias, per dozen ..	4	0 to 8
Aspidistra, dozen	18	0	Hydrangeas, per dozen ..	9	0
Aspidistra, specimen plant	5	0	Lilium Harrissi, per dozen	12	0
Calceolarias, per dozen ..	3	0	Lobelias, per dozen	3	0
Coleus, per dozen	4	0	Lycopodiums, dozen	3	0
Dracæna, various, dozen ..	12	0	Marguerite Daisy, per		
Dracæna viridis, dozen ..	9	0	dozen	6	0
Erica, (various) per dozen	9	0	Mignonette, per dozen ..	4	0
Euonymus, var., dozen ..	6	0	Myrtles, dozen	6	0
Evergreens, in variety, per			Palms, in var., each	1	0
dozen	4	0	dozen (specimens)	21	0
Ferns in variety, dozen ..	4	0	Pelargoniums, per dozen ..	8	0
Ferns (small) per hundred	5	0	dozen	3	0
Ficus elastica, each	1	0	dozen	4	0
Foliage plants, var. each	1	0	dozen	6	0

Bedding plants and roots for the garden in boxes, and in great variety.

AVERAGE WHOLESALE PRICES.—OUT FLOWERS.—Orchid Blooms in various.

	s. d.	s. d.		s. d.	s. d.
Anemones, dozen bunches ..	1	6 to 3	Myosotis, dozen bunches ..	1	6 to 2
Arum Lilies, 12 blooms ..	2	0	Narciss (various), dozen		
Asparagus Fern, per bnob.	2	0	bunches	2	0
Bouvardias, bunch	0	4	Orchids, var. doz. blooms	1	6
Carnations, 12 blooms ..	1	0	Pæony (English), Pink,		
Cornflower, dozen bunches	1	6	dozen bunches	6	0
Eucharis, dozen	3	0	Pæony (English) Red,		
Gardenias, dozen	2	0	dozen bunches	4	0
Geranium, scarlet, doz.			Pæony (French), per bunch	0	6
bunches	4	0	Pelargoniums, 12 bunches	4	0
Gladioli, dozen bunches ..	4	0	Pinks, dozen bunches ..	2	0
Iris (various), doz. bunches	4	0	Pyrethrum, dozen bunches	1	6
Lilac, White (French), per			Roses (indoor), dozen ..	0	6
bunch	3	6	dozen	1	0
Lilium longiflorum, 12			dozen	1	0
blossoms	2	0	dozen	1	0
Lily of the Valley, 12 sprays,			dozen	1	0
per bunch	1	0	dozen	1	0
Maidenhair Fern, per dozen			dozen	1	0
bunches	4	0	dozen	1	0
Marigolds, 12 bunches ..	2	0	dozen	1	0
Mignonette, dozen bunches	2	0	dozen	1	0



NOW AND THEN, OR 'TIS SIXTY YEARS AGO.

EARLY in this century a new writer arose—a writer who veiled his identity for a long time—a writer who brought all the reading world to his feet. His first work was entitled, "Waverley, or 'tis Sixty Years Ago," and it was not until he had published several other volumes that he became revealed as Sir Walter Scott. The events he depicted were full of life and go—battle, rebellion, and murder. But what were all the years of his life compared with these last sixty years during which her gracious Majesty has held the sway over us?

In many cases changes come so gradually; the transition from old to new is so slow that we are not fully aware of their magnitude. It is only when we come to some great or notable turning point or milestone, and look back on the way we have travelled, that we at all estimate the distance we have covered. We rest and spend some little time in retrospect, and move on sadder and wiser.

This year of a glorious anniversary is a stopping place to pause and reflect. The Royal Agricultural Society is one year younger than her Majesty's reign, and if arts and sciences have taken giant strides so has agriculture. There are three classes of society intimately interested in this great industry—landlords, tenants, and labourers—and their positions are about reversed. In 1837, and for some decades after, landed property was held to be the best of investments. Now it is considered one of the worst. There was a day of prosperity for landlord and tenant in the sixties, to be followed only by a night of prolonged darkness. The labourer did not earn, in the southern and eastern counties, enough to keep body and soul together; now, for shorter hours, he gets liberal payment.

All the burdens on land have increased a hundredfold, and there are no compensating clauses. Perhaps machinery is the thing in which we see the most marked improvement. It is hardly possible to find any implement of husbandry as it was sixty years ago; our children do not understand what a flail can be, and except for Bible reference a sickle or reaping hook are dead letters. Take the simple plough of our forefathers, put it side by side with the varieties introduced by a hundred makers.

Think of the time when one drill was the boast of a parish, and an old Crosskill reaper the wonder of a neighbourhood. All manner of steam appliances that are now used, and used so unconcernedly, are the result of hard brain work, and we make of steam our handiest servant. Who does not remember the hordes of hard-working Irish labourers who came year by year to harvest our heaviest crops, and who could work—yes, and drink and fight too—as no Englishman could? They are in the vanished past.

Had this been written thirty years ago we should have spoken of land reclaimed from common and moor and brought into cultivation. Now as a set-off we sorrowfully turn to parish after parish of derelict land, hanging like a dead weight on the neck of the poor owner. There used to be the joy of harvest, a bountiful harvest, a blessing to all. Now we gather in our limited crops with little pleasure, knowing that our best efforts are swamped by the myriad bushels poured into our seaports by the intelligent foreigner, who has found out how to produce the "staff of life" more cheaply than we.

There is one thing to be said in favour of this invasion. We remember as children, after a wet harvest, the dark, dank bread we had to eat. Now this is all changed. The cottager has white bread on his table fit for a palace, and at a much lower cost than the bread of the past. John Bull likes to brag a bit, and when he can honestly do so let him have his fling. We can grow the best pedigree animals the world ever saw. We breed with care, with skill, and we spare no money. Our temperate climate and green meadows have much to answer for; but where would they have been without our enterprising race of tenant farmers, the backbone of the stock breeders? We do not think lightly of the help rendered by the upper classes, but we feel that the steady pluck and personal superintendence of the intelligent farmer has been the source of all our success as stock raisers. We raise for all the world.

Some classes have gone down; take coach horses, for instance. The roads are better now; a lighter class of horse is needed, something smarter, and the coach horse proper is a thing of the past. Take, too, the modern hunter; he is quite of a different type from the short-tailed, stiff animal portrayed in old pictures. Where is the Durham ox? Merged in the magnificent Shorthorn.

We breed now for early maturity; we breed to have no coarse cuts and no fat greasy mutton. A departure of modern days has been the Shire horse. Draught horses there were in plenty, and some of them of an excellent type, but it has been the work of the last twenty years to develop and classify in stud books the sires and dams whose pedigrees are as long and whose value is almost as great as Derby winners. The last ten years has seen a most marvellous development in this one branch of agricultural industry. The modern hackney, too, is an innovation—pedigree and action first and last, and a fancy price to boot.

Then what about all these shows at "Merrie Islington"—Shire Horse, Hackney, Hunters, Improvement, Dairy Show, and Fat Stock? The Dairy Show is, if we may use the term, a grand invention, and has given a marvellous impetus to milk producers, dairy workers, and dairy appliance makers. Reflections have been cast upon our dairy work; we are told how vastly superior is the foreigner, and yet no foreign nation can get up such a show as we have annually in October. We cannot touch in this paper on the noble work done by the "Royal," nor can we refer to those talented men who make that society what it is by their strenuous, unceasing efforts.

There has been a tremendous advance in science as applied to agriculture, but it is folly for us to think that science can possibly take the place of the patient, practical observation of a lifetime. Farming cannot be learned from a book, but the book read by the light of experience increases the knowledge twofold.

WORK ON THE HOME FARM.

We have had a few fine days with great heat, then a change to (Wednesday) wet and cold. Swedes are about all in, only a few rows remaining to be drilled; they have gone in well, except in one or two strong places, where there is always more or less difficulty.

The early sown Mangolds are a full strong plant, and are looking grand and nearly ready for striking out; the later sown did not all come from the drilling, the soil in places being too dry; they are all coming now, but will be late. They may soon make up lost ground if the season be a hot one; in the meantime, the others have got a good start, showing the value of early seeding—the early bird again.

All kinds of vegetation have made enormous progress since our last. Wheat will soon be shooting; Barley and Oats are more backward, but doing well, especially the latter. Potatoes are coming to the hoe too fast to be attended to as soon as they should be. Indeed, now the corn is looked over and Swedes are sown Potato weeding and earthing are

the operations most pressing on the attention. Mangolds and Swedes will require hoeing very shortly, so there is no time to lose.

This rain and cooler weather will again postpone the cutting of Clover for hay. As long as the lower leaves are not dying and dropping off the crop must be gaining in weight. It is impossible to get every flower into bloom without losing leaf, but Clover should be in full bloom before cutting. Cowgrass requires cutting earlier than Red Clover, as it is very coarse and strawy if allowed to stand too long.

The cool wet weather may cause trouble amongst the ewes lying on the cold wet ground, being liable to cause downfall in the udder. This complaint requires early attention, being very dangerous if neglected. The animal should be put in a dry pen or shed, fed on a little weak gruel and hay, first having a drench of 2 ozs. of Epsom salts and 1 oz. of ginger given in gruel. The udder should be gently rubbed with goose grease on the hard portions. The drench may be repeated as the effect appears to have worn off, say the second or third day. A dry layer is very essential, and no access to water.

CHICKENS FROM EGGS (EIGHTEEN MONTHS OLD).

It may interest many of your agricultural and suburban readers to know that a novel method has been discovered for preserving eggs perfectly fresh for twelve months or more, not only for eating, but for hatching purposes. It may appear incredible to many poultry keepers that the germ of an egg can be kept alive for so long a period, for under ordinary circumstances it is well known that eggs become more or less stale for eating, and will seldom hatch chickens if more than three weeks old.

The new method is as follows:—Wrap each egg the day it is laid in a small square of newspaper, and pack these eggs side by side in a box, layer upon layer until it is full. After the lid is fastened down it must firstly be stored in a dry cool place, and secondly, be turned upside down at least three or four times a week. This simple process of turning will preserve eggs perfectly fresh for twelve or even eighteen months.

A neighbour of mine has for several years hatched out a lot of chickens from eggs so stored and turned twelve, fifteen, and some eighteen months after being placed in the box. As 1000 eggs can be stored in a single box, and turned in a few seconds, it is clearly to the advantage of housekeepers to "box" eggs in the spring when they are eighteen for 1s., and consume them at Christmas when they are six or eight for 1s.—KINARD BAGHOT DE-LA-BERE, *Burbage Hall, Leicestershire*.

[The method which our correspondent describes is subdivided into (1) wrapping in newspaper, and (2) turning frequently. Enveloping eggs in newspaper is not by any means a new method of preservation. We have before heard of and adopted this plan in preserving eggs for eating purposes. The newspaper, in that it excludes the passage of air through the porous shell, retards decomposition and destruction of the germ. Similarly ice is prevented from melting rapidly in hot weather by being well wrapped in newspapers. Another proof of the non-conduction of heat by paper is the fact that if a newspaper be sandwiched between two blankets on a cold night radiation of heat will be much retarded, and the sleeper kept much warmer. Such methods for the preservation of eggs as greasing with butter or immersing in a solution of lime illustrate the same principle of excluding air, but unfortunately eggs thus preserved are of no use for hatching purposes, since the chicks in order to hatch alive must have a supply of oxygen, which is impossible if the pores of the shell are choked with grease or lime. We think, however, that our correspondent attaches undue importance to constant turning, for movement is likely to damage the vitality of the germinal spot, and believe that if the turning of the eggs were omitted quite as good, if not better, results would ensue, provided the eggs were carefully wrapped in paper as soon as possible after being laid.]

METEOROLOGICAL OBSERVATIONS

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1897. June.	Barometer at 32°, and Sea Level.	Hygrometer.		Direo- tion of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In Sun.	On Grass.		
	Inchs.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Inchs.	
Sunday . . . 6	30.097	67.2	62.9	N.E.	60.1	75.0	54.5	92.0	47.2	0.012	
Monday 7	30.085	62.9	59.3	N.	60.2	66.0	60.0	91.6	55.7	—	
Tuesday 8	30.057	52.6	49.2	E.	59.0	55.1	50.7	87.3	49.6	0.681	
Wednesday . . 9	29.706	50.6	50.1	N.	56.4	53.1	48.9	73.9	49.5	0.059	
Thursday .. 10	30.116	55.5	52.7	N.	54.9	66.9	43.3	112.4	37.2	—	
Friday 11	30.329	66.4	55.3	W.	55.8	77.5	46.2	132.6	41.3	—	
Saturday .. 12	30.327	71.7	62.6	W.	58.4	81.4	51.1	122.2	48.1	—	
	30.102	61.0	56.4		57.8	68.3	50.7	98.9	46.9	0.752	

6th.—Sunny morning, but hazy and close; slight showers in afternoon and evening, with a little distant thunder.

7th.—Overcast almost throughout, and spots of rain in evening.

8th.—Overcast and drizzly, with rain from 11 A.M. to 1 P.M. and after 11.30 P.M.

9th.—Continuous rain from 0 A.M. to noon; dull, drizzly, and showery after.

10th.—Overcast at times, but generally fair and some sunshine.

11th.—Sunny morning; much thin cloud in afternoon.

12th.—Bright and warm throughout.

A variable week, but mean temperature near the average.—G. J. SYMONS.

ROYAL DIAMOND JUBILEE.



1837.



1897.

IN HONOUR
OF
THE QUEEN.



JOURNAL OF

HORTICULTURE.



WHEN her Majesty the Queen had occupied the Throne for the remarkable period of fifty years great were the rejoicings among the millions of her loyal subjects. On that auspicious occasion no section of the inhabitants of the kingdom was more anxious to do honour to the event than that which is composed of horticulturists. Many there are who still remember the great devotion of the late Prince Consort—a patron of all that was good—to the art of gardening, and how effectively he was assisted and encouraged by his Royal help-meet, who is still happily our gracious Queen.

It is not too much to say that when the great leader in gardening—for such he was—was called away the whole heart of the nation went out to the Royal mourners. The Throne and the People were felt to be very near together then; and there has been no separation. The same deep-seated love and loyalty remain, but strengthened by time, and the fact asserts itself in a manner which cannot be mistaken on the occasion of any event that marks an epoch in the nation's life.

When such events are of a nature to evoke feelings of thankfulness and joy these find spontaneous expression, not in words alone, but worthy acts. This was so in 1887, and now we have history repeating itself in 1897, but in still more emphatic form. The event is greater, rarer, unparalleled, and hence unique. Sixty years a Queen! and such a Queen! surely the kindest and

the best, and certainly the ruler of the greatest monarchy in the whole wide world.

What wonder that her subjects should rejoice; that they should gather together from the ends of the earth—swarthy sons of the empire from Africa and Asia, hardy and enterprising subjects from North America and far-distant Australasia? At home all classes and creeds, representative of all arts and crafts and sciences, each and all in their own way doing honour to the great occasion and homage to the head of all—their noble Queen. Scattered as may be the dominions under her sway, the spirit of unity breaks through the bonds of distance, and races are drawn together under the magnetic force of a great personality—the embodiment of freedom and justice, with all the attributes that have made the British Empire what it is to-day—stronger, richer, and better than it has ever been before in all the annals of its long and stirring history.

Returning to our immediate domain, two incidents may be first noted which are known to be in precise accordance with her Majesty's aspirations—namely, that where practicable the rejoicings of the present year shall be in the form of strengthening public charities, or relieving distress. We have a noble charity in the gardening world that has done truly noble work during almost the whole period of her Majesty's marvellous reign, and of which the Queen has been Patroness for forty-five years. This is the Gardeners' Royal Benevolent Institution. Since its establishment

fifty-nine years ago this grand charity has distributed £71,000 to worn-out gardeners, horticulturists, and their widows, and has now on its funds men and women who are receiving permanent relief at the annual cost of nearly £3000. This is a great achievement, though the claims on the exchequer are unequal to meet the ever-pressing demands of gardeners who are no longer able to labour, and whose small savings are exhausted. This Institution is seeking (and happily with good promise of success) to commemorate her Majesty's glorious reign by raising a special fund, to be called the "Victorian Era Fund," for the benefit of applicants who are awaiting aid which cannot at once be granted through lack of means.

We have also a younger charity that links in a manner most gratifying the rejoicings of 1887 with those of 1897 among the gardening community. The year first named will always be memorable, as it was in celebration of the great Royal event which then occurred that the Gardeners' Royal Orphan Fund was established, with the object of affording help for helpless children born into the gardening world, and hope for the widows who were almost crushed down with despair. The need for such a charity was evident by the pressing applications for aid, and year by year candidates had to grieve under the bitter disappointment of failing to secure election to its benefits; but—and here comes the golden link in the chain which connects the two great years of rejoicing—the charity, inaugurated in 1887, is in 1897 supporting seventy children at a cost of nearly £1000 a year, with a reserve of £10,000. This is a splendid result to have been accomplished in the time; but it is not all. Desiring to commemorate this greater Jubilee of our good and gracious Queen, those who are responsible for the conduct of the Fund felt that in no way could they carry out their desire so fittingly as by dispensing with an election altogether, and placing the whole of the candidates on the benefits of the Institution.

Those endeavours to celebrate, on the lines suggested, an event which has no parallel in the annals of history afford conclusive evidence of the deeply rooted loyalty that is established in the horticultural community, while the form of its manifestation is such as must command the widest possible approval. There are other forms, however, of celebrating the unequalled reign during the present memorable year.

The Royal Horticultural Society, as befits its high position, provides a new medal different from all others existing—the "Victoria Medal of Honour in Horticulture"—as a distinction to persons who have rendered good service in some of the various branches of the art—as scientists, cultivators, raisers of new products, discoverers, or writers. This may be regarded as a permanent memento of the sixty years' reign, and there can be no more than sixty Victorian medallists at any one time—a happy idea, and the honour of the distinction will be cherished by its possessors.

In addition to this, the Society, desirous of assisting in bringing together the most extensive and varied display of the products of British gardens, where such display can be witnessed by the greatest number of persons who usually assemble on such occasions, its patronage is to be given to the greatest provincial horticultural society in the kingdom. This is the Shrewsbury Society, and it may be confidently expected that no such representative example of British horticulture, in its ornamental and useful aspects, could be provided elsewhere as in the town to which many thousands wend their way on the occasion of the great show and gala in August. This year the exhibition is to be distinctly commemorative of the Diamond Jubilee. Thus, while the Royal Horticultural Society gives all the encouragement within its province to the charitable institutions, it is doing its duty in other directions during the present eventful year in honour of the Queen.

We have said that her Majesty, and the much and long-mourned Prince Consort, were, in days long past, great patrons of horticul-

ture. Some gardeners and garden lovers still remain who, with ourselves, can remember the famous shows at Chiswick, when the gardens were thrice the extent they are now, and the brilliant assemblages on those occasions. They will call to mind the Queen and Prince Albert, with the then young Royal Family, all blithe and happy, examining and admiring the products, while the exhibitors had the privilege of standing near their collections. As we are reminded by a septuagenarian gardener, 4000 carriages have been known to drive to Chiswick on a show day. How many hundreds, he asks, would do so now? Well, times have changed, and the gardens have changed. Shows of garden produce were comparatively few and far between then, whereas they are now to be seen almost everywhere. They are no longer novelties, but would almost seem to have become necessities of life, and more will be provided this year, to be attended by an infinitely greater number of persons in the aggregate than ever assembled on such occasions in the "palmy" days of the long ago.

But we are dealing with the question of Royal Patronage in horticulture. We do not know for how many years the Queen-Empress has been patron of the Royal Horticultural Society, but we know that the Prince Consort was elected President in 1858, and this is what was said in the *Journal of Horticulture* at the time:—"The Society will congratulate itself on the appointment. The Prince is a popular man, fond of improvements in all branches of natural science; but after all the great source of his popularity is his natural kindness and affability—two of the strongest qualities under Heaven for uniting the most opposite minds into one compact body." We also know that all the Royal Princes and Princesses were elected Fellows on January 31st, 1860. The South Kensington scheme had then started, towards which the Queen subscribed £1000, and the Prince Consort £500. The gardens once famous, but long since blotted out by the inexorable force of events, were opened by the gardener Prince in 1861, who closed his speech on the occasion with the following heartfelt hopes:—"May your efforts meet with public approbation. May that approbation give you all the support required to carry out on a larger scale than heretofore the useful objects for which you are incorporated."

The Royal President perceived, as if by intuition, that if the Society were to flourish it must be—like the Throne itself—"broad based upon a people's will," the will and desire of horticulturists. From that will there was, mainly in consequence of the great lost leader, a sad departure, but fortunately a return to legitimate objects brought about the great revival, which never since the historic change was so marked as at the present time. This is the effect of wise government—a Council of the Society as loyal to horticulture in its broadest aspects as to the person and throne of its Imperial patron, our noble Queen.

Two other events cannot be forgotten in which her Majesty took a prominent part, and which gave considerable impetus to the progress of horticulture—namely, the opening of the Great Exhibition in Hyde Park in 1851, and of the Crystal Palace at Sydenham in 1854.

Of the great Hyde Park Exhibition it was said at the time in our columns:—"Mr. Paxton's beautiful structure bids fair to set people thinking about the best methods of erecting plant houses in the future. Instead of leaning them against walls for support, we shall find it possible to make them stand on their own legs, and be as cheaply heated and be far better, not only for plants, but Grapes and Peaches as well; and then we shall learn more of pleasure ground gardening through the influence of this exhibition during the next few years than we have learned from all the books and shows of the past." The prophecy of the glass structures has been exactly fulfilled, while few will deny that the transportation of the "Palace of Light" to Sydenham, with all the resulting accessories, exerted a great and lasting influence for good in the diffusion of the taste in gardening throughout the community.



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57, Ebury Street, London, S.W.

Relative to the opening of the Crystal Palace where it now stands, we find the following allusions in our issue of June 22nd, 1854, and which may be appropriately cited:—"The spectacle was not to be forgotten. On the central platform stood a Royal Family, unequalled by any of its contemporaries, whether as an illustration of English domestic happiness, or as an example of a monarch wisely careful to promote the home improvements and pleasures of her subjects. Three generations were in the Royal group, and no one could look upon it without the conviction that husband and wife, child and parent, were examples of reciprocal affection. It spoke out in every action—from the Queen's mother placing the shawl over the Queen's shoulders, down to the whispers between the young Princes and their father; but let us not, in the admiration of our Sovereign, forget the great object in view—namely, fostering the good taste and good habits of the least wealthy classes." This is what the Queen has always sought to do, and much has been accomplished through the agency of the pure, wholesome, intellectual art of gardening.

Recognising the intimate connection of her Majesty with horticulture over a much longer period than the majority of those who are identified with the ancient art, the *Journal of Horticulture*, whose jubilee is also near, and as reflecting the desire of its widely scattered constituents in the British Isles and distant Colonies, desires to share in the celebrations of the present time in a manner not inappropriate, and in accordance with the precedent of ten years ago. In the carrying out of the project on a more extended scale than on that occasion, it will be seen what has been done and is being practised in the gardens of the Queen; and in order that the narration might more nearly approach completeness than heretofore, permission was sought for the requisite facilities, also Royal sanction solicited for the publication of a portrait of her Majesty. The following letter from Lord Edward Pelham Clinton, K.C.B., will show how readily our requests were complied with:—

WINDSOR CASTLE, FEBRUARY 27TH, 1897.

TO THE EDITOR *Journal of Horticulture*.

SIR,—In reply to your letter of the 17th inst. I have pleasure in informing you that the Queen has graciously granted the request contained therein.

With regard to the Royal Gardens here, including the Slopes, Frogmore Gardens and Adelaide Cottage, Mr. Thomas, who has already been informed of the wishes expressed in your letter, will afford you every facility for illustration and description.

I have no doubt you will receive every assistance for the same purpose at Buckingham Palace, Balmoral, Osborne, and Hampton Court by producing this letter; but should you find any difficulty I shall be very glad to send an order of admission to the different places.

I beg to remain, Sir,

Very faithfully yours,

EDWARD PELHAM CLINTON.

Our first desire is to express publicly our grateful appreciation of the privilege so graciously accorded by her Majesty, and promptly transmitted by the Master of the Household.

In appropriate connection with the descriptions indicated it is proposed to associate a general survey of horticulture during the last sixty years. This will in no sense be a formal chronological record of events obtained by literary research; but rather a series of personal reminiscences, fresh from the fountain of memory, by probably the only person living who could have provided them in the same interesting and entertaining way—the Rev. H. H. D'Ombra, to whom we tender at once our congratulations and obligations.

The present issue of the *Journal of Horticulture* will thus be commemorative of a great historic event—an issue such as its readers will be glad to possess, together with reminders of changes and occurrences in gardening during the period which it covers; while it is hoped useful lessons will be embodied as derived from practice in the Royal Gardens, which has proved so satisfactory in the various departments. Attractiveness is of necessity the main feature of several of the Royal Establishments, but in the chief

of them utility is also present in its severest form, the value of the work being tested by exact records, comparison, and results. Before, however, describing modern practice, concise reference may be made to ancient history, and some contrasts with the present will not be overlooked.

Windsor Castle Gardens in the Past.

FROM the scanty information which can be gleaned from "Tighe and Davis' Annals of Windsor" it may safely be affirmed that gardens of some sort have existed at this ancient fortress almost from the time of the Norman conquest. We are fortified in this affirmation by the first historical mention we have of a garden at Windsor Castle, where it is stated that King Henry III. gave the Constable of the Castle instructions that the Church should have tithes of the Royal Gardens, Windsor. This was in the year 1231. The garden must have been in existence long before this, or it would not have been in a position to pay tithe to the Church out of produce grown and sold; and in the absence of evidence to the contrary it may fairly be said that the Royal Gardens have paid tithe to the Church regularly from that long time until the present day.

Henry III. seems to have been more or less a gardener king, for again we find him giving instructions that a garden for himself and Queen Mary be included in some additions made by him to the Castle, and, furthermore, he commands that the house of the gardener and the hedge about the garden are to be repaired, as well as a certain plantation formed. Later on the King's projects for carrying out improvements to the Castle were for the time stopped by financial difficulties, but not so his ardour for improving his garden; for we find that, in face of these difficulties, the King gives instructions that a fountain of freestone is to be constructed in the garden, and he also, at the same time, commands the "custos" of Cookham and Bray to turf the herbarium, to complete the drains, and to make a well in the garden.

After the death of Henry we find no further mention of a garden at the Castle until Edward III.'s time—1327—when we come across the King's instructions to the Constable to pay John, the gardener of the King's garden without the Castle, twopence halfpenny per day! Instructions were also given, at the same time, that the houses and walls of the King's garden were to be repaired. We may wonder what sort of houses they were in those days. Among the relief provided by the King at this time to his soldier knights—who, in their old age, had fallen on bad times and decay—was a garden. What a happy thought! Where on earth are greater pleasure and consolation found?

Nearly a hundred years have flown before we again come across any mention of a garden here. This time it is associated with the name and memory of King James of Scotland, who was here detained a prisoner by Henry V. It was here, and at this time, that the Scottish King saw from his prison window Joanna, the beautiful daughter of the Earl of Somerset, walking in the garden; with her he fell in love, and they were subsequently married. It was here King James composed his beautiful and pathetic poem—"The King's Quail."

In 1483 King Edward IV. entertained at great festivities and rejoicing the Governor of Holland under the Duke of Burgundy, who had hospitably rescued him from pirates when the king had been forced to leave England for a time to take refuge with his brother-in-law, the above-mentioned Duke, and one of the last items on the programme was the King showing him his garden and vineyard of pleasure.

Little more is said of the Garden until the time of Queen Elizabeth (1603), when it is mentioned that a plan had been drawn for a new garden, at an estimated cost of £418 14s. 8d., including the walks and planting, and the gardener's wages at this time were stated to amount to the munificent sum of £4 per annum. The next news we hear of the Royal Garden is in the time of James I., when it seems it had fallen on bad times, as it was given or leased to the Corporation of Windsor for ninety-nine years, and afterwards for another term of forty-one years.

In Queen Anne's reign greater attention and encouragement seems to have been given to gardening, especially the planting of trees. It is here stated that a considerable sum was expended in that year (about 1705), by Henry Wise and Michael Strudholme, the former the Superintendent of the Garden, the latter having charge of the construction of roads

and other works in the Park. At this time an estimate was prepared for making a new garden on the north side of the Castle at a cost of £6874 18s., for the purpose, so tradition says, of commemorating the glorious battle of Blenheim. This work was never completed, although it was so far advanced that its outlines may still be traced on the turf of that portion of the Home Park where it existed. It may be mentioned here that this land is occasionally subject to floods, and this may account for the project being abandoned.

ANCIENT VINEYARDS OF WINDSOR CASTLE.

That Vine-growing for the purpose of making wine was practised to a considerable extent in many parts of the South of England in olden times is beyond dispute, as abundant records prove. The historical battle of Hastings was fought near a large plantation of Vines. Domesday Book, a statistical survey of England, prepared by command of William the Conqueror during the latter part of his reign (1066—1087), contains thirty-eight entries of vineyards then esteemed

ponderous round tower of the Castle stands. This is now a delightful old-world garden, containing venerable fruit and other trees, as well as herbs and hardy flowers, though on one side there are modern flowers in a scroll bed.

It is said that vineyards became gradually neglected in England after the acquirement by conquest of a portion of the wine-producing districts of France. The battle of Poitiers (1356) was fought in a French vineyard, consequently it is said French wine became the fashion—relished as the produce of British possessions in France; but wine was long subsequently produced in England, and there is little doubt that by growing a wise selection of Vines in the most favoured positions, better wine could be obtained from home-grown Grapes than is found in some of the Continental concoctions. It is to be presumed that the varieties of Grapes which used to be grown in the ancient Windsor and other vineyards are no longer to be found in this country, except, perhaps, in the Marquess of Bute's collection, obtained from the North of France.

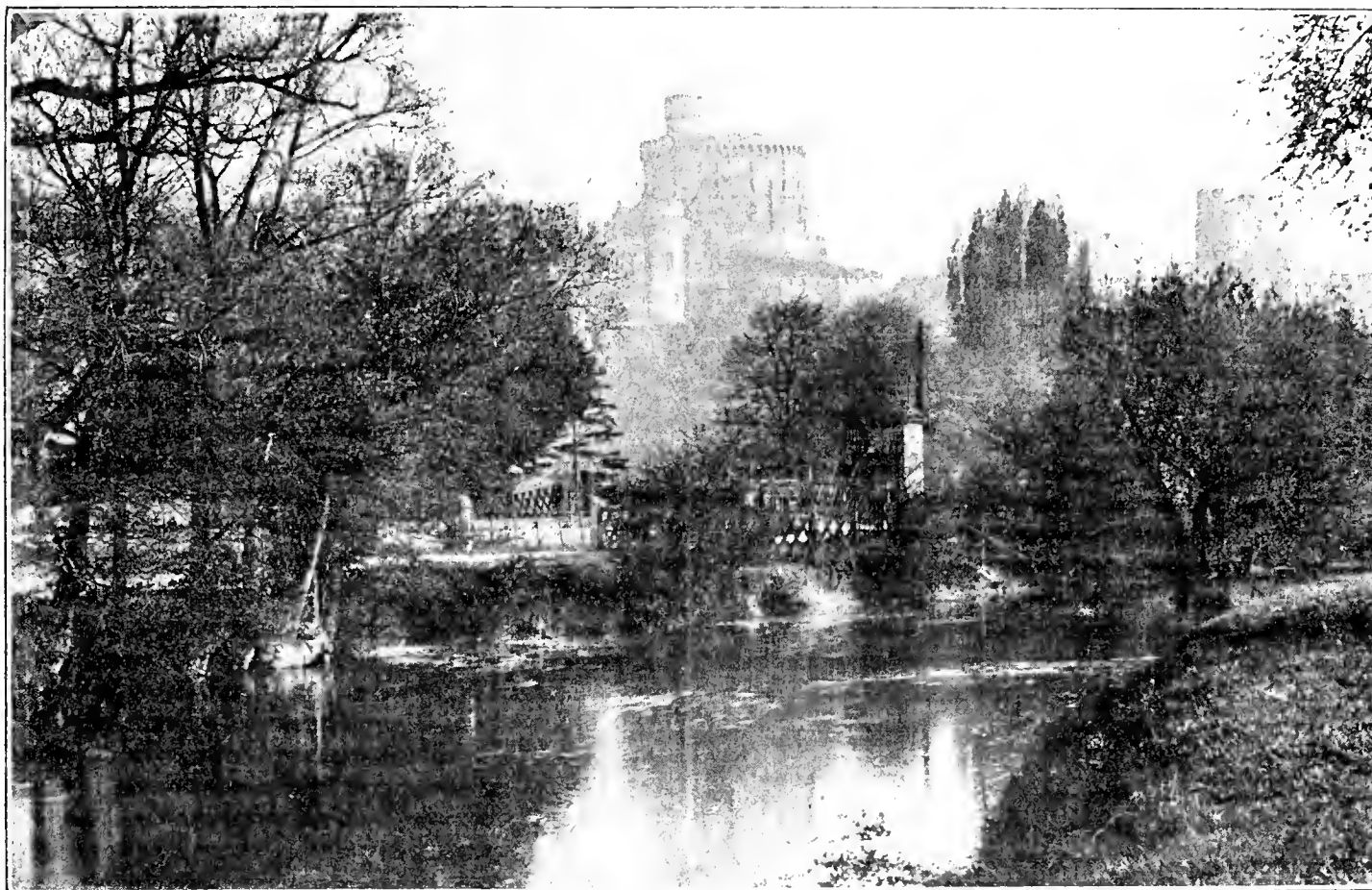


FIG. 104.—WINDSOR CASTLE.

valuable. Down to the latter part of the seventeenth century vineyards were scattered over many parts of the South of England, and extended as far north as Peterborough. The Bishop of Rochester sent King Edward II. both Vines and Grapes of his own growth, perhaps for comparison with the produce of the Windsor vineyards. Be this as it may, there is no doubt that Grape-growing in the open air for wine making was an important item of work at Windsor Castle in the olden time, as we find about the year 1300 that among the many appendages to the Castle at this time was the vineyard. The pay of the vintiger and the expenses of gathering the Grapes are among the regular annual charges relating to Windsor on the pipe rolls.

Lambard says that "it moreover appeareth that tithe hath been paid of wine pressed out of Grapes that grew in the little park there to the Abbot of Waltham, who was parson both of Old and New Windsor, and that accounts have been made of planting the Vines that grew in the said park, as also of making the wines, whereof some parts were spent in the household and some sold for the King's profit." The Chaplain of the King's Chapel at this time (1272) received 30s., and the Keeper of the Vineyard the same—for how long a service is not stated. As late as the time of George III. a small vineyard existed on the ground outside the south wall of the lower ward of the Castle, and between it and Castle Hill, east of Henry VIII. Gateway, a spot now covered with a beautiful lawn. It is reasonable to expect, too, that Vines were grown on the steep sides of the great mound on which the

The Gardens and Pleasure Grounds of the Queen.

FROM the time of George III. to the accession of her Majesty to the Throne very little matter of interest is recorded in reference to gardening at Windsor Castle; but with the advent of the Queen the darkness and mists of the past gradually vanished, and a new and brighter era for gardening was ushered in. The great supply gardens at Frogmore were formed, and from then till now continued progress has been marked in all departments; and it may be said that every aspect of gardening is appropriately and admirably represented in the Royal demesnes.

Ornamentally we have every feature, from wild forest scenery to semi-dressed woodland charms; placid park, with stately trees; broad drives, with clean smooth surfaces and lawny margins; noble avenues and charming vistas; glistening water, meandering between richly wooded slopes, and embracing picturesque islands; the smoothest of smooth lawns, encircled and intersected by splendid terrace walks; flowers, old and new—old as in the ancient Dutch garden, more modern as in the later styles of home adornment; plants of various kinds and for definite purposes, and in enormous numbers in the aggregate, with a bountiful supply of all other requisites which gardens afford, as contributing to the health and happiness of those who possess them. The

great supply gardens of Windsor will be subsequently referred to. At present we will take a survey of the beauties of Nature and Art which surround the great and good monarch's glorious home.

It may here be stated that what is commonly understood as the Royal Gardens, Windsor, includes in this enumeration the following departments:—The Castle terrace flower garden, the slopes and Adelaide Cottage garden, the drives and plantations in the Home Park, Frogmore House grounds and gardens, and the following gardens some distance from Windsor belonging to the Queen:—The Royal Lodge, in the Great Park; the great Vine at Cumberland Lodge, also in the Great Park; the Queen's garden at Virginia Water, and at Aldershot; also the private garden and the old Vine at Hampton Court Palace—all, as well as the great charge of the Royal kitchen gardens, Frogmore, under the supervision of her Majesty's head gardener. Endeavour will be made to note some of the most interesting portions of the Royal Gardens, so far as the *Journal of Horticulture* may contain a description of them.

THE CASTLE AND FLOWER GARDEN.

Firm as the rock on which it stands towers above all that is near the majestic Castle of Windsor. The splendid residence of a long line of monarchs, it typifies the solidity and strength of the nation, while in dignity and repose it seems to represent the ideal of calm security—not so much a fortress as a home. Massive and picturesque in its broad outline is the magnificent pile (fig. 104, page 547). Imposing is its magnitude; marvellous is its preservation. It seems to have passed unscathed through the centuries, and the absence of flaw anywhere to be seen suggests its power to pass through many more. To the historian it is as a book of infinite treasure, not only in the wealth of its unrivalled library, but to him the history of England is written on every stone. To the true Briton at home and abroad the old Castle is the embodiment of England's life, wealth, and power, and above all does it appeal to the hearts of the sons and daughters of the Empire as the Empire home of their much-loved Queen. Striking are the characteristics of Royal Windsor, and perhaps the most significant of these is the healthy atmosphere of freedom which is felt to surround it. Apart from encroachments on its privacy as a home, to which the humblest cottage in the land is entitled, its portals seem to be open to all; while on fitting occasions the charms of its surroundings—its noble terraces, its beautiful garden, the strains of joyous music that enliven, the flowers which smile, the freedom that inspires—all are alike shared at the same time by Sovereign, princes, and people, and the more enjoyed by all because of the happy association.

The Castle garden is reached by visitors either through the main entrance on the west, nearly opposite the Great Western Railway Station, or from the north, near the terminus of the South-Western Railway, by the portal and the route known as the "Hundred Steps," but actually as near two hundred, which zig-zag their way up the heavily wooded sides of the ponderous escarpment. Seats are thoughtfully provided at the top for those who need a moment's rest before traversing the famous North Terrace. From here the scene is without a parallel. Far overtopping the tallest trees we look over the battlements into the great umbrageous depths below.

Reaching the north-eastern corner of the Castle, the bright and beautiful garden comes into view—a garden different from any other in position, configuration, and adornment. It is a garden of art emphatically, yet not the art that chills; there is a well-balanced proportion of broad gravel walks, deep grassy slopes, wide sweeps of lawn, large beds of flowers, effectively associated with elegant Conifers and ornamental shrubs. From this terrace garden looking to the left a glorious view is obtained of the woods of the slopes, and skirted as they are with flowering trees in great variety, such as Lilacs, Thorns, Laburnums, and Weigelas in rich bloom, the sight is one not easily forgotten. From here is also obtained a panoramic glimpse of a part of England most interesting and beautiful. To the north-west is seen the Oxfordshire hills and the River Thames, as it quietly winds its way towards Windsor, and the far-famed Eton College. On the north the Chiltern hills form a splendid background, with Burnham Beeches, Stoke Pogis, and Slough in the forefront. To the east is seen the smoke of London, and on a clear day the towers of the Crystal Palace are distinctly visible, and to the south and south-west the sky line marks the great forest of Windsor for many miles.

The flower garden is situated on the east side of the Castle, and is about 4 acres in extent. It is surrounded by a broad terrace walk, with an embattled wall as a boundary (fig. 105), most of the embrasures being mounted with miniature cannon. The body of the garden is sunk about

12 feet below this terrace, and is therefore seen to the best advantage by the public, who, as previously mentioned, are admitted on Saturday afternoons, and sometimes on Sunday, by the Queen's commands, when also the two bands of the regiments staying at Windsor play here for a couple of hours to the delight of the numerous visitors.

The lower body of the garden is divided by broad walks into four sections, a handsome fountain occupying the central position. The style in which it is formed and furnished may be appropriately called a mixture of Italian and English. It is rich in statues and other beautiful and valuable works of art in marble. A series of large beds are planted along the boundary of the garden at the base of the green bank which supports the terrace walk, with a number of choice evergreen shrubs from 5 to 8 feet high, such as Golden Holly, Golden Thuias, Cupressus, Retinosporas, Irish and other Golden Yews, all moderately cut into perfect pyramids and bushes (fig. 106, page 551).

At the time of our visit these were rich in their young golden growth, producing a striking effect. This style of judiciously introducing gold and green pyramids is followed throughout the body of the garden, only in more moderate proportions, for giving adequate room between the shrubs for flowering plants in spring and summer. The introduction of these groups of shrubs helps to warm the garden, and as it were in some measure to counteract the grey, cold, and severe aspect of the Castle, which forms its massive boundary on the west:

About 50,000 plants are used in furnishing this garden for both a spring and summer display. Most of the plants used for spring are raised from seeds, at little cost, and include the following: Dark and yellow Wallflowers, purple and white Honesty, blue, white, and yellow Violas, *Myosotis dissitiflora*, *Aubrietia*, *Silene*, yellow *Alyssum*, *Polyanthus*, Primroses, Daisies, and Pansies, with which are associated Hyacinths, Tulips, and other bulbs. The system adopted in planting is to aim at massing the different kinds in harmonious colours in order to produce telling effects from the terrace and the Castle windows, rather than planting in rows and small groups for close inspection. That the desired result is attained is beyond question, as a finer exhibition of spring flowers than was seen in May it is difficult to imagine; while those who have inspected the garden in summer will admit its varied charms.

Much more might be said of this beautiful garden, with its numerous flowers, and of the old orangery which forms its northern boundary, and which is furnished chiefly with Palms, Camellias, and in winter is used for preserving tender bedding plants (which it does without fire heat, its walls being so thick, and its shutters so closely fitted), as might also be said of the terrace wall next to the Castle, covered as it is with Magnolias, Banksian Roses, Pomegranates, *Ceanothus*, Roses, and many other beautiful climbing plants; but we must be moving on, as we have much to see and to say.

QUEEN VICTORIA'S WALK.

Retracing our steps a little way we stand on the south side of the Castle near the Grand Entrance, and face the Long Walk with its splendid avenue of Elms. We turn to our left and follow the wall of the flower garden on the Park side. In front of this wall, which is beautifully clothed with Ivy, is a plantation of evergreens and hardy flowering trees and shrubs; the latter mostly planted about two years ago, about 600 trees of about fifty species, and include Almonds, Mountain Ash, double Cherry, Crabs, Laburnums, *Acer Negundo variegata*, Lilacs in variety, Weigelas, Forsythias, *Arbutus*, *Philadelphus*, *Spiræa*, in variety, *Viburnum*, *Halesia*, Magnolias, *Rhus cotinus*, Sweet Briars, Snowy Mespilus, Judas Tree, Bird Cherry, and many others too numerous to mention. These will be very beautiful when well established in a few years time. They will be seen to great advantage from the flower garden terrace, and from the Queen's apartments in the Victoria tower, which overlooks all (fig. 106, page 551).

On the right hand as we go along is a wide expanse of lawn of about 9 acres, kept in the best of order, as are all the other parts. Many handsome deciduous trees of modern planting are to be seen, the most conspicuous being a handsome Copper Birch. On the left hand as we go along we see next the terrace wall many indications of the Queen's love and care for her pet dogs, not only when they are alive, but also when they are gone, in tiny monuments of marble and bronze placed over their graves and partly hidden by shrubs. Here we also pass by a splendid *Cedrus deodara* planted by the Prince Consort a few days after the Queen's marriage; and at the north-east corner of the terrace one of the finest trees in the kingdom of *Kœlreuteria paniculata*, which shows its noble head of yellow flower above the embattled wall.

Proceeding a little farther we come in contact with the high portion of the slopes.

The Queen Victoria walk or drive passes along near the edge of the great natural terrace, and from it glimpses are obtained, between the trees, of the deep picturesque dell below. On the park side of this walk are to be planted at wide intervals a number of trees of the blue-tinted Mount Atlas Cedar, *Cedrus atlantica glauca*, which are destined to become historical, for they are to commemorate the great reign of their Royal owner, which is now being so heartily celebrated in all parts of her vast dominions. The Mount Atlas Cedar is a beautiful hardy long-lived tree, the glaucous form growing as freely as the green, and is singularly attractive. The young trees are established in baskets for the purpose of insuring their growth when planted in the summer. They will add a distinct feature of interest and beauty to the Royal demesne.

THE SLOPES OF WINDSOR.

Pass we now to the lower ground. For quiet, secluded, romantic scenery the slopes of Windsor are justly famed. This is really a woodland garden, extending from the extreme northern end of the Castle, near the 100 steps leading from the town to the Castle, clothing the steep banks of the Castle heights, and the ground on the flat below for nearly a mile, with magnificent trees of great size and antiquity. They are mostly Beech, Chestnuts, Elms, Oaks, Planes, with many Scotch and ordinary Fir trees. The level on which we are standing is upwards of 200 feet higher than the lower portion of these grounds. As there is a shady and rural walk on the top edge of this precipitous bank we will walk

quietly along, noting features of interest on the way. The first matter to arrest attention is the soothing sound of falling water. This is from a small cascade in the depths below, the water afterwards running through the grounds in a beautiful winding stream, soon finding its way by the side of the Lime avenue to the Thames, from whence it was diverted higher up the river at great cost many years ago. Here also is seen in the distance a summer house, with a garden enclosed, which at one time was frequented by the young Princes and Princesses, who there played and planted their flowers. We cannot pass by without noting the beautiful condition of the carriage drives and walks which wind through and intersect these grounds in all directions.

A broad drive cuts through the steep banks of the slopes and across the walk we are on. This is the private carriage drive leading from the Castle to the South-western lodge and station. By the side of this drive in the bank are formed some wonderful caves, such as would delight the hearts of children to play hide-and-seek in. Crossing over this drive we proceed along the ledge of the slopes, still under the shade of handsome trees, admiring on both sides the many flowering trees and shrubs, with myriads of Primroses peeping out of the grass banks, until we come to a sort of subway constructed of chalk, flints and rough stones, cleverly formed with a curve, in order to hide from view as long as possible the object to which it leads—a pretty rock garden, and which it succeeds in doing admirably.

This garden was formed and planted many years ago under the personal care and supervision of her Majesty and the Prince Consort. It is, as it were, cleft out of the steep bank, and planted with alpine trees and plants; at the base below is an irregular artificial basin of water, fed by a stream or waterfall running down the bank, and immediately above this is a curious grotto, the inside walls of which, as well as the roof and floor, are formed by myriads of small pebble stones fixed in cement. What a work of patience this must have been! Altogether this is a most interesting rock garden, appropriately kept in a semi-wild state.

QUEEN ADELAIDE'S COTTAGE.

Still proceeding, we come to another pleasant surprise in the beautiful gardens and cottage named after H.R.H. Queen Adelaide. This secluded and quiet retreat is at the extreme end of the slopes from the Castle. The cottage, which is of a beautiful design, rests against the bank, looking over the park towards the River Thames and Datchet. It has about it a lovely little garden of the old-fashioned sort, with high hedges, and many nooks, corners, and surprises; here also is the cottage of the

Foreman of the Slopes, clothed as an arbour by a luxuriant old Vine, from the Grapes of which many gallons of excellent wine have been made.

Also, close by, is the historical and interesting Lutheran Beech, now of large dimensions, and in perfect health. It is said to have been raised from the Beech tree near Altenstein, in the Duchy of Saxe-Miningen, under which tree Luther was arrested at the time of the Reformation. The little offshoot was brought to England by King William IV. when Duke of Clarence, and planted by Queen Adelaide

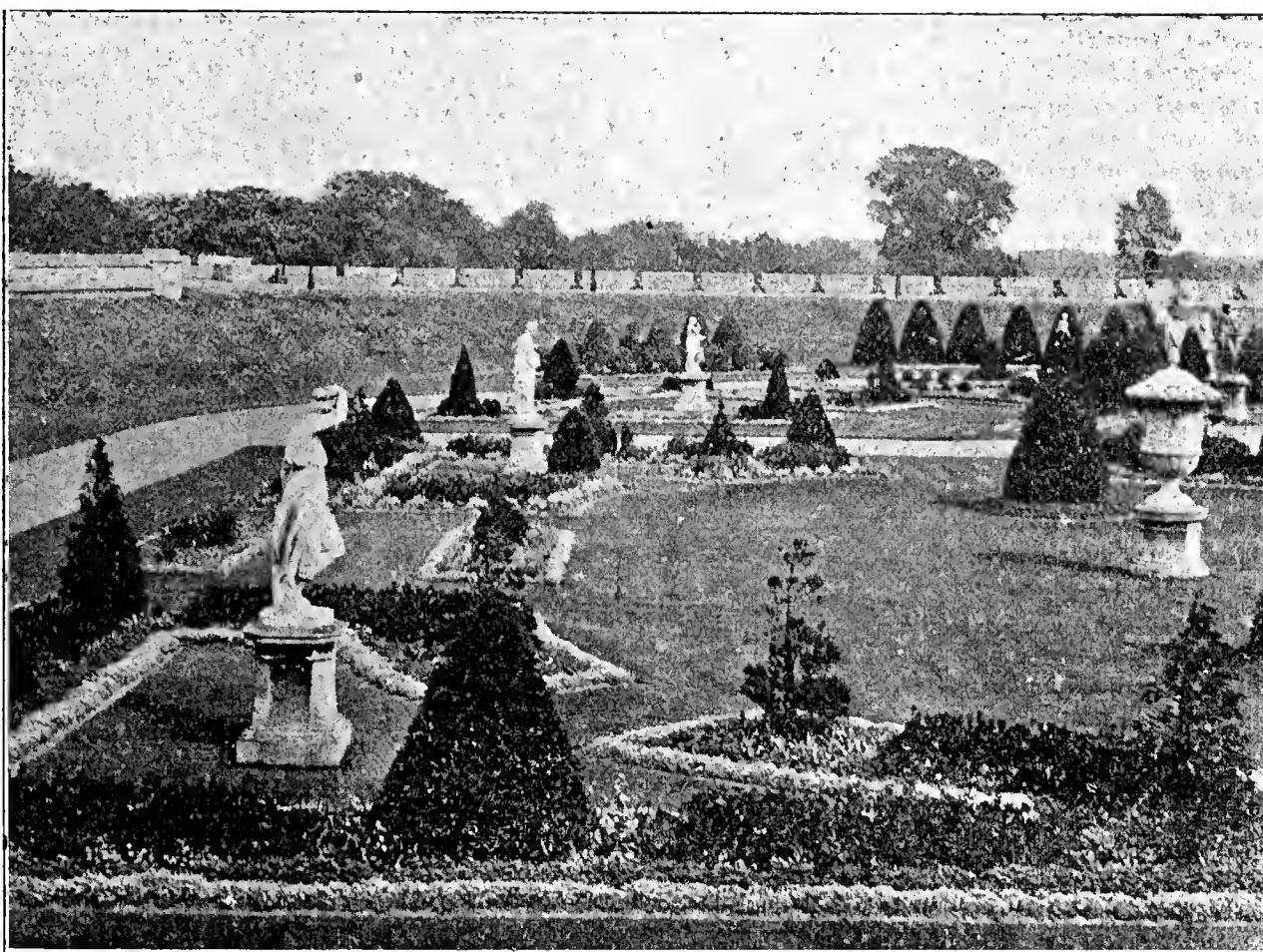


FIG. 105.—TERRACE GARDEN AND EMBATTLEMENTS.

in the gardens of her residence at Bushy Park. Her Majesty bequeathed the tree to H.R.H. Prince Albert, with the request that it should be transplanted in the grounds of Adelaide Cottage, which was done in 1850. The original tree at Altenstein succumbed in July, 1841. It is to be hoped that the present beautiful one will long live and flourish to perpetuate so interesting and historical an event.

Here in a separate enclosure, entirely hidden from view by huge Yew hedges are situated the glass houses and pits in which the thousands of summer bedding plants are grown. A short rise up a broad avenue takes us out of this delightful garden, and also out of the slopes, and we stand again in the open Park not far from the kennels of the Queen's pet dogs, and from where, to the right, we again have a glimpse of the east side of the Castle towering in solitary grandeur with the sky as a background.

BEAUTIFUL AVENUES AND NOBLE TREES.

Crossing from the slopes to Frogmore we enter one of the most important avenues in the Park, running from east to west from the River Thames to Windsor. There are many of these great avenues round the Castle, and the most delightful of all is the old Lime avenue leading from the slopes to the river. In the summer this is a perfect Gothic arch half a mile long of dense green foliage. Hereabouts also are some notable trees. Immediately to our right is a Cedar of Lebanon, planted by the late Mr. Thomas Ingram less than fifty years ago, and which

deserves notice as showing to what size and dignity this handsome Cedar attains in a comparatively short space of time. It is now 50 feet high, and has a spread of branches of 63 feet, the girth of the stem 6 feet from the ground being 11 feet.

Another handsome tree is also noticeable—a Wellingtonia, planted to commemorate the confirmation of H.R.H. the Princess Royal of England. This is the first Wellingtonia planted at Windsor, and is probably one of the first introduced into this country. By the drive leading from the kennels to the Castle is the finest Oak associated with Windsor Castle (if we except William the Conqueror's Oak in the Great Park). How old the veteran is no one knows, but judging by its ancient and hoary appearance it may be safely conjectured that it is as old as the Conqueror's Oak, and therefore dating back at least to the Norman period. Its girth at 4 feet from the ground is 36 feet. Near it is one of the handsomest of the many thousands of Elms round Windsor. This is about 120 feet high, with a girth of trunk 4 feet from the ground of 26 feet. This is a splendid tree, in perfect health.

THE ROUNDABOUT GARDEN.

Passing along on the way to Frogmore House Gardens we arrive at the "Roundabout Garden." This has been formed in an open position in the park, not far from the Castle, by planting a round belt of trees, those on the outer boundary consisting of now large and well-grown specimens of scarlet Chestnuts, Limes, Oaks Evergreen and English, Birch, Hollies, Araucarias, and many species of Pines, having a splendid face to the interior of huge bushes of Rhododendrons, Lilacs, and Thorns, with an old specimen of the Judas Tree just opening into bloom. In the centre of the garden is an immense bed of Rhododendrons and standard Roses. This unpretentious little garden possesses in combination the charms of perfect seclusion, quietness, repose, and simplicity, with the brightness and fragrance of flowers. So we thought as we admired it from a rustic arbour it contains embowered trees.

ROMANTIC GROUND.

From the garden just left the Fairy Pit Pond is soon reached. This is now a piece of artificial water used for skating on in winter, and close to Herne's Oak of historic memory. There are few things connected with Windsor which have excited greater interest than the question of the position and identity of Herne's Oak. It is scarcely necessary to say that the interest attached to the point is founded on a certain tradition and the allusion to the employment of that tradition in Shakespeare's play, the "Merry Wives of Windsor"—namely, that Herne, one of the keepers of the Forest, was to be seen after his death, with horns on his head, walking by night round about an Oak in the vicinity of the Castle. It is said that, having committed some great offence for which he feared to lose his situation, he hung himself on this Oak, which his ghost afterwards haunted. The first reference to the tradition occurs in the fourth scene of the fourth act, where Mrs. Page says—

"There is an old tale goes that Herne the hunter,
Some time keeper here in Windsor Forest,
Doth all the winter time at still midnight
Walk round about an Oak with ragged horns;
And there he blasts the tree, and takes the Castle,
And makes milch kine yield blood and shakes a chain
In a most hideous and dreadful manner."

The site on which the old tree stood is now occupied by a healthy young Oak, planted by her Majesty in order to perpetuate so interesting a tradition. Near this spot are the dead trunks of two old Oaks, supported in position by props, and which may be fairly supposed are twin sisters of the old haunted tree.

DRIVES AND DUTCH GARDEN.

A few yards from this romantic ground we come on to the main drive leading from the Long Walk by Frogmore House to the Royal kitchen gardens, and also to Old Windsor, and to the right of us is another drive communicating with Frogmore House and the Castle. Speaking of drives and walks we may here say that there are twenty-five miles of walks and drives in the Royal Gardens department at Windsor, and no better can be found in the kingdom.

As we stand on the drive at this spot the Queen's little entrance gate to Frogmore House Gardens is immediately before us. It is called the Queen's Gate. Before entering a glance is taken to the left, and there for a distance of 200 yards, close to the drive, and separated from it by a low bank of Laurels only, is seen one side of as perfect a specimen of an old Dutch garden as it is possible to conceive, with its immensely thick Yew hedges (fig. 107, page 552), supported and lighted up by some of the finest standard trees of *Acer Negundo variegata* we have seen. Further on this drive we pass the east front of Frogmore House, and the eastern boundary of the grounds, faced by scarlet and white Chestnuts in full bloom and altogether beautiful.

Frogmore House Gardens.

We believe this is the first time that permission has been given for these delightful old gardens (in which her Majesty takes so great an interest, and with which the Queen's whole life has been so closely associated) to be described and illustrated to any extent desired. For this privilege we are most grateful; but however loyal the pen and pleasant the task, a difficulty is felt in adequately portraying the many fascinating and interesting features of this cherished enclosure and beautiful haven of repose for the living and the long-mourned dead. Before entering on a description a few brief words relative to the history of the gardens may prove of interest.

Among the Crown lands sold after the Civil War was Frogmore, which came into the possession of George Fitzroy, Duke of Northumberland, whose widow, the Dowager Duchess, died here at a very advanced age. About 1748 Frogmore was purchased by Sir Edward Walpole, K.B., who made many improvements in the gardens, and to whom we are no doubt much indebted for the wealth of magnificent and interesting deciduous trees found therein. Queen Charlotte purchased the lease of Frogmore, when it became her Majesty's favourite residence, and subsequently that of her Royal Highness the Princess Augusta; then afterwards for many years of her Royal Highness the Duchess of Kent; and since her mother's death it has been in the occupation of her Majesty the Queen. Their Royal Highnesses the Prince and Princess of Wales lived here for a short time, and this was the birthplace of their first-born child—the late Duke of Clarence, whose pathetic and tragic end is still alive in the memory of all. It was also the home of their Royal Highnesses Prince and Princess Christian before they took up their residence at Cumberland Lodge.

Entering the garden at the Queen's little gate previously mentioned, immediately on the left is the quaint and interesting old Dutch garden with its immense Yew hedges and beds of old-fashioned herbaceous plants, the whole kept as near as possible in the same fashion as it was in those far-off days of William and Mary. To the right is the sheltered and cosy garden belonging to Frogmore Cottage—now the residence of her Majesty's native Indian Secretary. At a turn of the walk a few yards further we come upon a beautiful lawn, almost of an oval shape, bounded on three sides by a belt of high trees, giving one a momentary impression that we have the whole of the garden before us, so cleverly are the other portions hidden from view. In the centre of this lawn is a beautiful Indian marble kiosk, sent to the Queen by the first Governor-General of India, Lord Canning. To the right are the glass houses in which plants for the decoration of Frogmore House and gardens are grown, and in which was observed the bright and elegant old *Begonia fuchsioides* growing and flowering in great luxuriance, trained over pillars and arches, loaded with its beautiful coral-like heads of drooping flowers.

The plan (fig. 108, page 553) of these beautiful grounds is from the pen of Mr. Harry Thomas, a promising student in the Royal Gardens, Kew.

THE LAKE AND ISLAND.

Passing these houses, and skirting the belt of plantation to our right, we have a charming panoramic view of a portion of the garden. Immediately in front of us is a large, well-wooded island, and at its base a first peep of the beautiful lake, which plays so important a part in the embellishment of these delightful grounds, is obtained. Looking to the left along a portion of the lake the eye first rests on what appears a small Gothic ruin, nestling under the branches of an immense Cedar of Lebanon, and guarded in front by an equally ancient and noble giant Plane tree. Near this is a small rustic bridge, crossing a neck of the lake, and over which hangs in a caressing-like way the drooping branches of a Babylonian Willow.

Glancing a little farther—still over the lake—we have a peep at another pleasant lawn, flanked on the right and left by high banks of Rhododendrons, flowering Chestnuts, pink and white Laburnums, Bird Cherries, Thorns, Lilacs, and other flowering shrubs. On this lawn are growing many single specimen trees of great rarity and beauty, some of them perhaps the finest examples of the kind to be seen in any garden. Very conspicuous is an immense column-like tree of *Libocedrus decurrens*, 65 feet high, of great girth, a splendid specimen without fault or blemish. It was planted in 1857 by the Princess Hohenlohe. It is shown in fig. 109, page 555, with its reflection in the water, and a glimpse is also had of the west front of Frogmore House.

Near this is a singularly fine example of the Maidenhair Tree

(*Salisburia adiantifolia*). In form this may be said to be a blunt pyramid, 75 feet high, with a girth of stem of 9 feet at 3 feet from the ground, and so heavy are some of its branches that they have been, for a long time, banded together to the trunk by chains for safety. Close by is a fine specimen of *Thuia borealis*, 36 feet high, and in perfect health, also *Cupressus Lawsoniana*, upwards of 40 feet.

After viewing the left part of the garden we turn for a moment to the right. Here we have also the placid waters of the lake nestling against the banks of the previously mentioned wooded island, and near the walk is an immense tree of the Deciduous Cypress, measuring 75 feet high, its stem being clear of branches to the height of about 40 feet. A little farther to the left, on the bank of the

same time; and on the same date *Cupressus Lawsoniana*, by H.R.H. Princess Louise; and also on the same date *Cupressus Lawsoniana* was planted by H.R.H. Princess Beatrice.

Cedrus atlantica was planted by Prince Albert Victor of Wales in 1873; *Pinus pinsapo*, by their Royal Highnesses Prince and Princess Christian in 1867; *Picea lasiocarpa*, by Princess Thyra of Denmark in 1875; *Picea Nordmaniana*, by H.R.H. the Duchess of Edinburgh in 1874; *Quercus Suber* (Cork tree), by H.R.H. the Princess of Wales in 1873; the same by her Majesty the Queen of the Belgians at the same time; *Thuia gigantea*, by Prince's Louise of Hesse in 1864; the same by Prince Louis at the same time; *Cupressus sempervirens stricta*, by the Queen in 1864; *Cupressus Lambertiana*, by Prince Arthur, 1864;

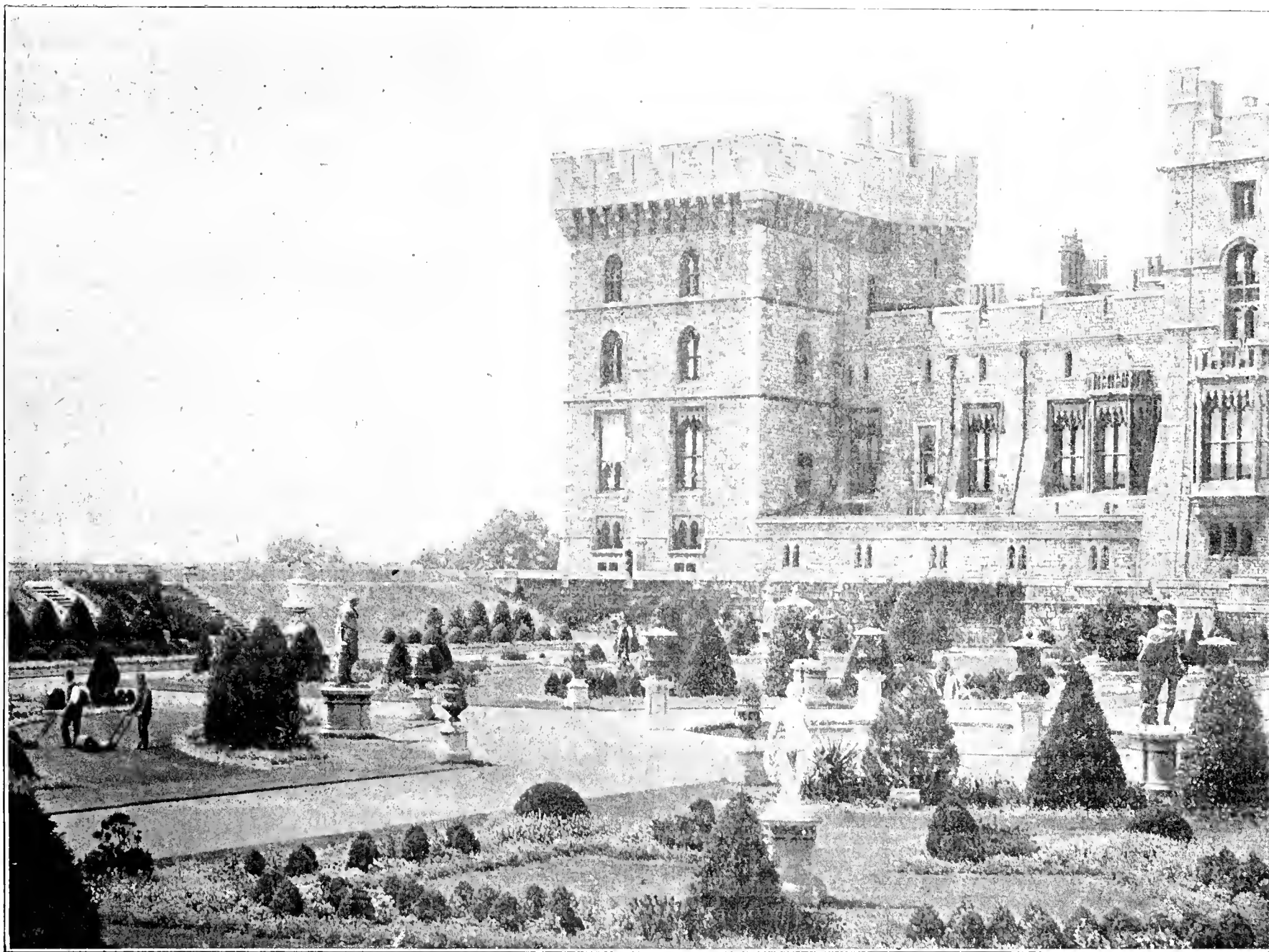


FIG. 106.—VICTORIA TOWER AND FLOWER GARDEN (page 548).

lake, is the best proportioned and finest-looking Cedar of Lebanon in the garden, although not the largest, and close by under the shade of this tree is a simple looking rustic summer house, with a thatched straw roof, looking so cool and restful on this hot summer morning.

ROYAL MEMORIAL TREES.

Further on in the same direction we come to a piece of lawn, on the north-west side of the Prince Consort's Mausoleum, on which are planted a large number of specimen coniferous and other trees by members of our own or other Royal houses, a few of which may here be mentioned. *Abies Pattoniana*, planted by her Majesty the Queen of Denmark in 1875; the same variety by her Majesty the Empress of Germany in 1876; *Cedrus deodara*, a magnificent specimen, planted by H.R.H. the Duchess of Kent in 1850; *Cupressus funebris*, by Princess Adelaide of Hohenlohe in 1853; *Cedrus libani*, by H.R.H. Prince Christian in 1867; *Cupressus Lambertiana*, by H.R.H. the Prince of Wales in 1864; the same by his Majesty the King of the Belgians at the

Thuia gigantea, by Prince Leopold, 1864; *Sciadopitys verticillata*, by Princess Louise Margaret of Prussia; *Wellingtonia gigantea*, by Princess Hohenlohe, 1857; *Abies Albertiana*, by Princess Victoria and Elizabeth of Hesse, 1887.

Two trees of *Pinus Laricio*, brought by the Queen from Hyères, were planted by Princess Ena of Battenberg and Prince Alexander; *Pinus parviflora*, by H.R.H. Prince Henry of Battenberg, 1885; *Picea lasiocarpa*, by Princess Helen of Waldeck, 1882; *Picea cephalonica*, by the Duchess of Kent, 1851; *Quercus Ilex*, by her Majesty the Queen, 1864; the same variety by the Czarevitch (now Emperor of Russia), 1894; *Salisburia adiantifolia* (a cutting from the large tree previously mentioned), by her Grand Ducal Highness Princess Alice of Hesse (now Empress of Russia), at the same time; English Oak planted by the Queen, June 20th, 1887, to commemorate her Majesty's Jubilee. Can elsewhere in the whole wide world be found such a collection of Royal memorial trees as this? But we have not quite done.

A little nearer the Mausoleum are two handsome *Wellingtonias*,

with a history of special interest. These trees were planted in the first instance in the grounds of the Royal Horticultural Society's Gardens at South Kensington, one by H.R.H. the Prince Consort on June 5th, 1861, on the occasion of the first opening of the garden and the other by the Queen on June 24th in the same year—the year, it may be remarked, of the lamented death of Prince Albert. On December the 15th, 1869, they were removed from South Kensington to Frogmore Gardens, and on the 17th were planted here by her Majesty near the Prince Consort's Mausoleum. One of the trees died in August, 1870, and another was planted in its place by the Queen in the December of the same year. The history of these two handsome and perfect trees is thus invested with a pathetic and interesting reminiscence as regards H.R.H. Prince Consort, her Majesty the Queen, and the Royal Horticultural Society. These interesting Wellingtonias are seen in the background in fig. 110, page 557, the large tree in the foreground being *Picea Nordmaniana*, planted by H.R.H. the Duchess of Edinburgh, in 1874.

Still proceeding on our way, we come to the main entrance gate leading to the Royal Mausoleum, and, turning to our left, we pass through many of the previously mentioned Royal specimen trees, and under the branches of an immense Cedar of Lebanon. This tree has a straight trunk rising to the height of 80 feet, and nestling as it were against a portion of its branches is the Royal Mausoleum—a temple embalmed with ever sacred memories, at the portals of which as we pass by we can only pause for a moment with reverent feelings and respectful sympathy.

To the left we cross a little stone bridge, from where we have a charming view of the lake, and immediately find ourselves on an island, a most secluded and quiet retreat, forming a sort of glade, with many single specimen trees of Wellingtonias, Libocedrus, Magnolias, and Sweet Chestnuts, the whole banked round its boundary on three sides by Rhododendrons, and on one side by the lake. Still proceeding we come to another bridge taking us from the island towards the beautiful mausoleum of H.R.H. the Duchess of Kent, the Queen's mother. This stands on a high elevation embowered in many trees of luxuriant growth (fig. 111, page 559).

Again passing along by a walk to the right, by a circuitous route, having the high mound on which the Mausoleum is built to our left, and the lake to our right, we arrive at another cosy summer-house, and immediately afterwards we stand before the west front of Frogmore House, a homely, comfortable, unpretentious, English-looking mansion, the exterior being painted a light grey colour. In front of the mansion a splendid general view is obtained of the grounds, the lake, and the park beyond. A smooth soft lawn, of considerable extent, gently slopes down to the lake side, and the lake here seems to fold in its embrace, as it were, a richly wooded promontory. On the left it is spanned by an artistic iron bridge, and on the right it seems to lose itself behind the leafy mound of the Duchess of Kent's mausoleum. Still to the right we have one of the beautiful lawns previously mentioned, with its unique specimen trees and beds of Roses, Ghent Azaleas, and Ivy basket beds by the walk side, which are planted with spring and summer bedding plants. On the left are some glorious deciduous trees, now in the full beauty of their young leafage, under which, in the distance, can be seen a glimpse of Her Majesty's tea rooms; but we must not anticipate. From here we also have a glorious view of Windsor Great Park and its giant forest trees.

Here, also, at the south-west corner of the house, is a simple little flower garden on the turf, and which in spring and summer is planted with bright flowers. Very few of what are called summer bedding plants are grown at Frogmore House. With such wealth of flowering trees, shrubs, and herbaceous plants, verily few are wanted. Now

let us leave the walk and cross over the lawn under the shade of some giant Elms and Beeches in the direction of the Queen's tea rooms, noting on our right as we pass a refreshing and bright glade of Rhododendrons. It is from here that the view representing the tea rooms has been obtained, also the first view of the two veteran Evergreen Oaks, said to date back to the time of the Crusaders (fig. 114, page 563).

These are magnificent trees, and from the distance appear as one, the circumference of their branches measuring upwards of 100 yards. They are in perfect health, and it is underneath these two old veteran Oaks that her Majesty frequently takes breakfast and tea in the summer time. It is in truth a charming spot, destined to become historical.

Thus comes to an end a mere glimpse of this much-cherished, beautiful, and delightful garden. We do not know which to admire the most as we pass through—whether the magnificent forest trees or the glorious collection of flowering trees and shrubs, and the specimen Coniferae, the lawns, the lake, or the exquisite way in which this 36 acres of garden is laid out and the perfection of order in which it is kept. It is not any one of these, but the "perfect whole," forming as it does in harmonious beauty one of the most lovely, peaceful, and restful gardens it has ever been our privilege to look upon.

We are now distant only a few minutes' walk from the Royal kitchen gardens. Noticeable on the way is a row of Medlars, beautiful trees, established on Thorns many years ago, presumably by the late Mr. Ingram. Crossing a new orchard of high promise we are within the garden walls, and in the commodious home of the head gardener find welcome rest after a morning's stroll that will haunt the memory, if life and health be spared, for many a year to come.

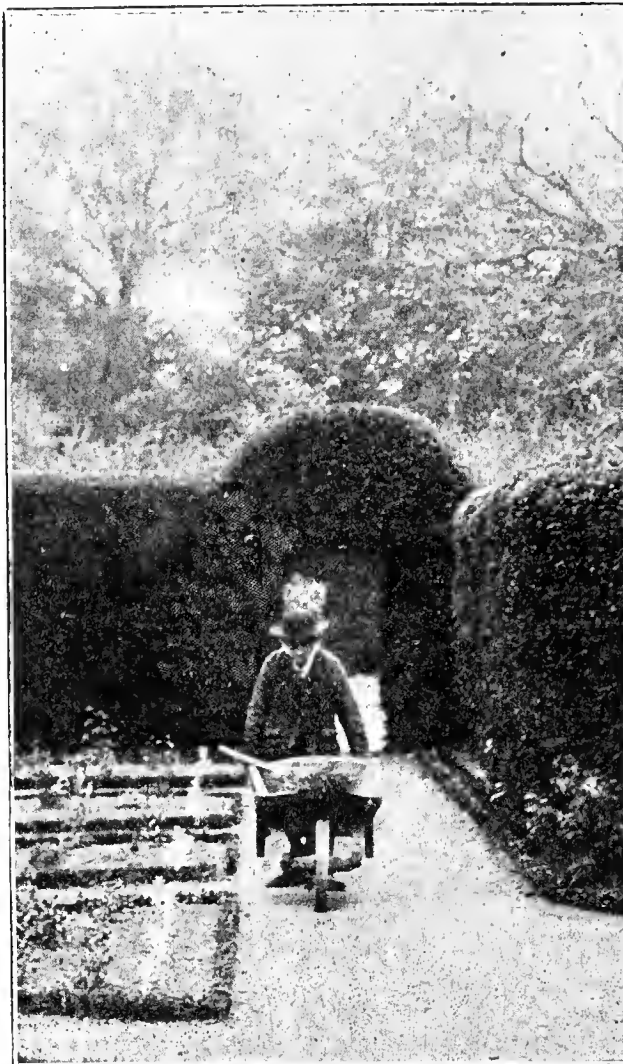


FIG 107.—DUTCH GARDEN (page 550).

The Royal Supply Gardens.

WHAT are known as the Royal kitchen gardens are such, and very much more. Not only is produce of all kinds, and of the best quality, grown in enormous quantities for culinary purposes in the various departments of the Queen's garden, but the demand for dessert fruit is of corresponding magnitude, while the requirements for plants and flowers are so great that the extent can scarcely be fully comprehended. Everything that a well-appointed, well-equipped, and well-managed garden can be made to yield is provided here, and transmitted to wherever the Queen and Court may be in residence, whether at the Castle, Buckingham Palace, Balmoral, Osborne, the South of France, or elsewhere. Packing may be said to be always in progress. In the ordinary routine the work is great, while an idea of the extent of it on extraordinary State occasions, as at Buckingham Palace, can perhaps be best formed from the fact that a special train is occasionally chartered for the conveyance of plants and other products on those occasions—the greatest and most varied supplies from, so far as we know, the greatest private gardens in the world, all planned and completed within the period of the great reign which is now in the course of celebration.

Before the present gardens were constructed the fruit and vegetables required by the Queen and the Royal household were grown at various centres, many of them wide distances apart. They included the Royal Gardens, Kew, Hampton Court, Kensington Palace, Maestricht (where now stands a portion of the station of the South-Western Railway at Windsor), Cranborne, Cumberland Lodge, and elsewhere. In

those days the delivery of supplies to the Castle and Buckingham Palace was effected by road, being collected from the various centres three times a week by horses and vans kept for this purpose. Under these adverse conditions the supplies were often intermittent, the management costly, and the supervision inefficient, as the head gardener in those days lived at Kensington.

Eventually a committee was appointed to consider the question of supplanting this clumsy and antiquated system by a new, efficient, and central supply garden near Windsor Castle. The issue of this commission resulted in an Act of Parliament being passed authorising the leasing or dismantlement of those various scattered gardens, and the construction of the present Royal gardens was sanctioned to commence about the year 1843.

SITE AND SOIL.

The site chosen in the Home Park is on the extreme edge of the Park, south-east of the Castle, and distant from it about a mile and a

quarter. It is immediately below Frogmore House pleasure grounds, and bordering on the village of Old Windsor. That the site is the best in many respects that could be found there can be no doubt. It is as near the Castle as it could be judiciously placed on account of so much rough and heavy work which must always be associated with the working of such an immense garden. It is bounded at its lower end on both sides by a public road, one from Old Windsor to New Windsor (Old Windsor is said to have been a Royal residence before the present town of Windsor was in existence), and the other from Old Windsor to Datchet, thus affording all possible facility for the heavy carting of fuel, soil, and manure without having to traverse much of the private grounds. But from a strictly cultural point of view the garden lies too low, being only a few feet higher than the Thames, from which it is distant about 250 yards. This low position exposes the garden to much dampness and fogs in winter, and fruit tree blossom and early vegetables to damage from frost in spring.

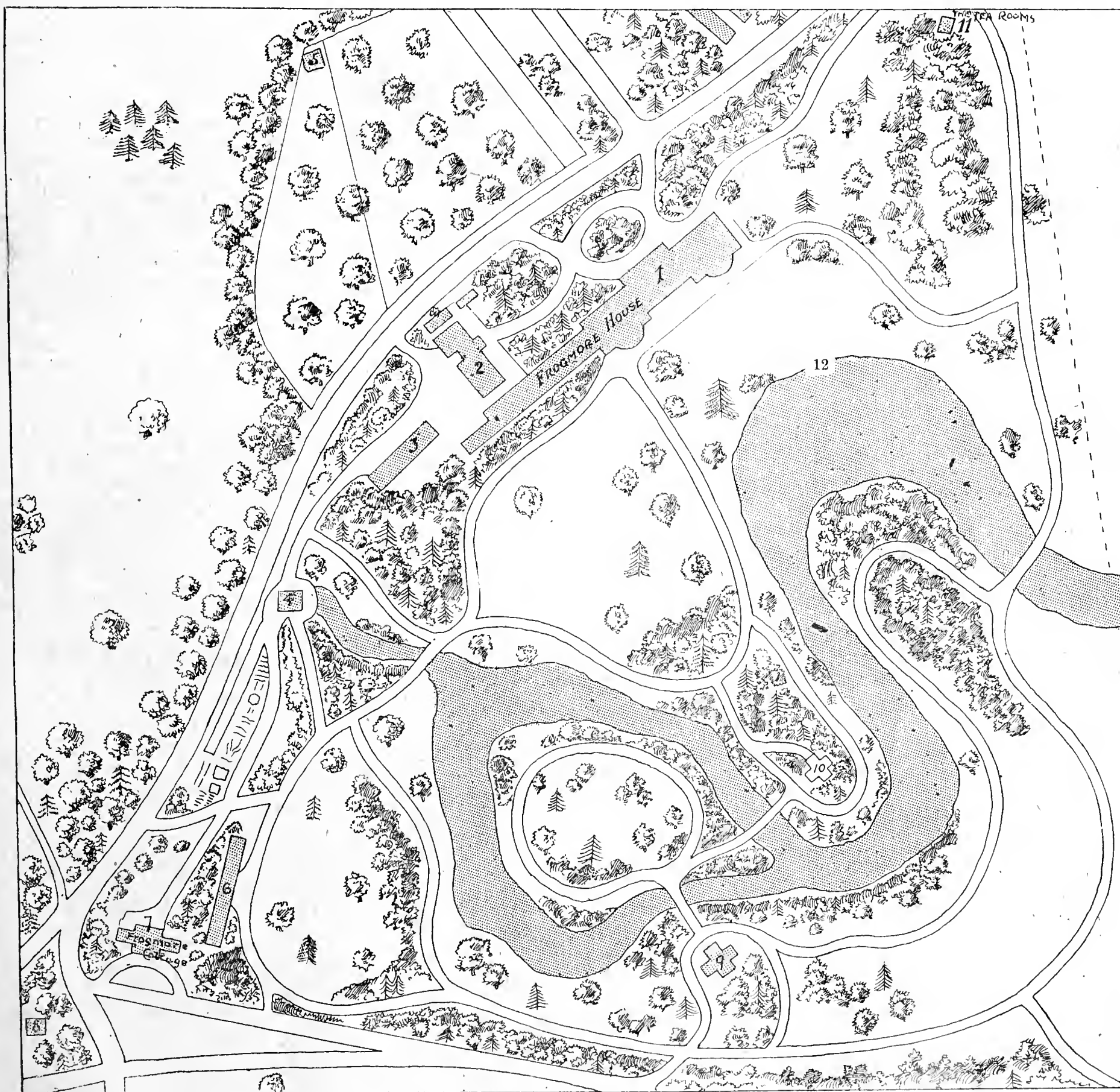


FIG. 108.—PLAN OF FROGMORE HOUSE GROUNDS.

- 1, Frogmore House.
- 2, Frogmore House Stables.
- 3, Vinery and Peach Houses.

- 4, Gothic Ruins.
- 5, Foreman's House (Kitchen Garden).
- 6, Greenhouses.

- 7, Frogmore Cottage.
- 8, Foreman's House (Pleasure Grounds).
- 9, Prince Consort's Mausoleum.

- 10, Duchess of Kent's Mausoleum.
- 11, The Tea Rooms.
- 12, Lake.

Another objection may be stated—namely, the composition of the soil—a heavy marl, varying in some parts to strong clay. Even now, after having been thoroughly worked and liberally manured every year for half a century, it is most stubborn, and can only be brought into proper condition to receive seeds and crops after the expenditure of much labour and time.

Passing Frogmore House and noting on the way a new Apple orchard of 4 acres, and a recently rejuvenated old orchard, we proceed through a thinly planted avenue of Wellingtonias, planted about forty-five years ago. Opposite the garden entrance a glance is had of the Evergreen Oak avenue (leading from the Lodge to the Thames) planted ten years ago by the Queen and members of the Royal Family to commemorate her Majesty's fiftieth year on the Throne. The Evergreen Oak is a slow-growing tree, and it will be a long time before this makes an imposing avenue. Still the trees are in excellent health and growing satisfactorily. We are now at the garden entrance lodge, this and the pillars being densely clothed with Ampelopsis Veitchi; but before passing the porter, dressed in green and gold, it may be well to give some idea of the size of the kitchen gardens and their general arrangement.

AREA AND TERRACE.

The area of garden ground secured in the first instance was 31 acres, all of which were enclosed by a substantial and well built wall, 12 feet high, protected by a coping with a projection of 4 inches on each side. This boundary wall measures from east to west 352 yards, and from north to south 285 yards. The great length from E. to W. gives the garden a splendid exposure to the sun from morning to night. Its position is south, with a few points to the east. This large enclosure is intersected by other walls of the same height, forming in fact six separate gardens, all of course communicating with one another.

After the completion of this garden it was soon found that this area was insufficient, and 10 acres more were added on the south side, and after a time 10 more acres were joined to the west side, so that with the 3 acres of kitchen garden (walled in) at Frogmore House, the extent of the Royal kitchen and fruit gardens amounts to upwards of 50 acres; and even this large area is found to be insufficient, much fruit and many vegetables often having to be bought. The construction of the garden, not including the great additions which have from time to time been found necessary, amounted to about £50,000.

On entering the lodge gates the first object that presents itself to the spectator is an imposing terrace 352 yards long by 25 yards wide, having a wide carriage drive in the centre, bounded on each side by a broad space of turf, on which are planted Roses in round and oblong beds. Between these beds, on both sides, are many bell-shaped wire trellises about 9 feet high and 7 feet wide, all covered with climbing Roses—Crimson Rambler, Carmine Pillar, W. A. Richardson, Bennett's Seedling, Aimée Vibert, and other varieties which help to make a charming picture in the summer time.

On the right of this noble terrace (about half of which is shown in the illustration, fig. 115, page 564), and parallel with the drive, is constructed the chief range of fruit houses the whole length of the terrace, broken only in the centre by the head gardener's house into two ranges—one called the East and the other the West. In these ranges are nine vineries, four Peach houses, and one large Rose house, besides many connecting corridors, each having a door communicating with the terrace, and each corridor planted either with Grapes or Peaches. Behind the wall, against which this long range of lean-to houses are built, are all the garden offices, such as bothies, bath rooms, library, stokeholes, Mushroom houses, packing and potting sheds, and fruit rooms. In front of these buildings is the little town of glass houses and pits devoted to the growth and forcing of fruits, flowers, and vegetables. This area covers about 8 acres, and is enclosed by walls 12 feet high.

On the left hand of this great south terrace—along which her Majesty frequently passes in the course of her afternoon drives, are specimen Thuias, Irish Yews, Golden Hollies, and Cypresses, many of them 30 feet high. These are flanked on the kitchen garden side by a low hedge of China and W. A. Richardson Roses, and also by a line the full length of the terrace of fine specimen pyramidal Pear trees about 15 feet high, and removed here only three years ago. Parallel with these are two flower borders, each 120 yards long by 24 feet wide, one containing a collection of Hybrid Perpetual and Tea Roses, the other planted two years ago with the best known varieties of hardy plants for cutting purposes and for pleasing effect. Southward from this terrace and borders extends the kitchen garden and hardy fruit trees, to be referred to in due course, another section of this great establishment claiming prior attention.

THE GLASS DEPARTMENT.

So extensive is this, that only the salient features can be noted, and a few practical points in routine briefly indicated. The terrace ranges previously mentioned, and partly shown in the illustration (page 564), were built by Messrs. Clarke & Hope of Birmingham, upwards of fifty years ago, the materials used being iron and copper. The houses are light and elegant, and when it is said that they are from all appearance as good as ever they were, it speaks well of the materials used and the workmanship of those days. A prejudice exists among many gardeners against iron and copper houses, in which it is clear that Mr. Thomas does not share, and as a matter of fact the heavy crops of fruit obtained from them annually speak forcibly in their favour. Let us take a short survey of the fruit grown under glass, and see how the houses suit the different kinds.

GRAPE CULTURE AND SUPPLY.

Grapes form an important part of the Frogmore fruit supply, and of vineries there are eleven, many of them of large size, and none of them small. For the last two seasons the year round has been spanned with Grapes—an everyday supply without a break. The summer daily demand is seldom less than 15 lbs., sometimes rising, with large parties, to upwards of 100 lbs. For a State ball or concert at Buckingham Palace 60 to 80 lbs. are needed. Fruit at one time used only to be furnished with luncheon and dinner, now it must be forthcoming at every meal, and in quantities too—a healthy sign this for gardening, which is spreading far and wide. When it is said that about 5000 lbs., more or less (according to the season) of Grapes are grown annually for her Majesty, including the returns from the old Vine at Cumberland Lodge and the one at Hampton Court, it will be readily understood that heavy crops of the best quality must always be forthcoming.

The first vinery is started during the last week in October or early in November, according to the ripeness of the wood, and also dependent on the quantity of Grapes in stock. The temperature is regulated according to the external conditions of the weather. If mild, the Vines are given a temperature of 55° to start with, rising gradually, as growth advances, until about the first week in January, to 70° at night, and this temperature is practically maintained until ripe Grapes are cut, during the last week in March or the first week in April, the earliest on record here being March 14th, four years ago. The varieties grown for the purpose of early forcing are Black Hamburgh and Foster's Seedling. The Vines are pruned on the long spur system, each lateral being cut, not necessarily to the lowest, but to the first good bud from the base. There are thousands of Vines over the length and breadth of the land that would yield much better crops than they do if pruned on this common-sense method, instead of being cut to the lowest bud, whether it be good or bad.

The second vinery is planted with the same varieties and pruned on the same principle. It is started about the middle of November, and ripe Grapes are cut from the middle of April to the end of May. This is a larger vinery, being 120 feet by 15 feet wide, and out of it are usually cut during May 700 lbs. of fruit. One half of the Vines are ten years old and the others about thirty years, the old ones looking as well and carrying equally heavy crops of good quality Grapes with the younger ones.

The third vinery is started December 26th, and ripe Grapes cut at the end of May and in June. This house was formerly used as a Pine stove, with one Foster Seedling Vine planted against the back wall for shading the path. The Pines were removed to other quarters a few years ago, and the old Vine, once the restrictions were removed, soon covered the roof with splendid wood and foliage, and now produces annually not less than 200 lbs. of first-class Grapes—a beautiful sight, and eloquent proof of the soundness of the principle of extension.

The fourth vinery is 75 feet long by 15 wide, planted with Black Hamburghs, started on January 15th, and now (20th May) ripening a very heavy crop of excellent Grapes, estimated to weigh upwards of 400 lbs., and intended for use during the Diamond Jubilee celebrations. These Vines have been planted twenty years, and have borne heavy crops year after year without a single failure. They are always pruned to the first good bud, and young shoots laid in to take the place of any spurs which may have to be cut out the following winter.

Next in rotation comes a house of Madresfield Court, Golden Champion, and Duke of Buccleuch, all looking well and carrying heavy crops of fruit, also intended for the Jubilee time. This house was planted 1st of July, 1893, with young growing Vines. At the end of September the roof was covered with splendid growth, and the following year three or four bunches of Grapes were taken from each rod, and they have since produced excellent results. A faint idea of these Grapes may be obtained from the small photograph taken long before they were ripe (fig. 116, p. 565).

Next comes the Muscat house, planted the same day as the last-mentioned, and treated in the same way, with equally successful results, and the Vines are now bearing a splendid crop of useful Grapes.

The remainder of the vineries are devoted to the cultivation of late Grapes, for which there is a large and increasing demand. The varieties best suited for this purpose are found to be the Muscat of Alexandria, Black Alicante, Gros Colman, Lady Downe's, West's St. Peter's, and Raisin de Calabre. Other varieties are grown, but those named succeed the best.

The Vines in these houses vary in age from one to thirty years, and all are more or less grown and worked on the extension system. Soil for the Vine borders is obtained from the Great Park. It is of good quality, having plenty of fibre; to this, and also to the fact that red spider is unknown on the Vines at Frogmore, must be attributed the heavy crops of excellent fruit annually grown.

PINES AT HOME.

Frogmore has been the home of the Pine Apple since the formation of the gardens, and much has been written from time to time during the past fifty years on the success attending its cultivation in the Royal Gardens. That that success has not in the least diminished, the splendid condition of the plants and their noble fruits, prove most conclusively. The varieties mostly grown are Smooth Cayenne and Charlotte Rothschild. The method of cultivation chiefly adopted is the planting-out system, and that it is attended with success the photographic illustration (fig. 117, page 567) affords ample testimony, though it does not do justice to the fruits.

The suckers for planting this pit were taken from the parent plant on the 15th of October, and the photograph was taken as well as it could be the following September, eleven months from the time of planting. This shows a greatly improved method of growing the "king of fruits" over that which existed a few years since, when two or two and half years were considered necessary to grow and ripen a good Pine. Half the secret of success lies, as most gardeners know, in planting large healthy suckers.

The number of plants grown in the pit is seventy-five, of which seventy threw up within three weeks of each other, and only five fruits weighed less than 5 lbs., the average being $7\frac{1}{2}$, but some weighed over 9 lbs. The pit (like others) is 40 feet long by 12 feet wide, with two rows of 6-inch pipes back and front. The bottom heat is wholly obtained by the aid of leaves rammed as tightly as possible to a depth of $4\frac{1}{2}$ feet. This body retains a good heat for eighteen months. On this a layer of loam $7\frac{1}{2}$ inches deep is placed, adding a good sprinkling of bonedust.

The soil, which is neither too dry nor too wet when used, is well trodden down, and the suckers, after having a few of their bottom leaves trimmed off, planted very firmly. They are closely shaded until roots have been formed and growth commences, when shading is entirely done away with. Water is given very sparingly in the winter, and the plants give a good account of themselves the autumn following. Other pits are treated in the same way, so that a good succession is always maintained.

Queens are also grown in quantity for spring and early summer supply. Suckers are usually taken off in August, and potted in 6-inch pots, in which they remain until the following March, when they are shifted into their fruiting pots (12-inch). They are plunged in a pit of leaves, with genial bottom heat, encouraged to grow freely, and at the end of summer, when growth is completed, more air is given. In

December the plants are placed in the fruiting pit, where rather more bottom heat is at command, and where all usually throw up early in February, giving useful fruit through the spring and summer months. The number of fruits grown year after year vary a little, but the usual number cut is about 200, weighing from 3 to 9 lbs. each.

At the foot of the Pine pits outside are narrow borders, and it is wonderful how useful these borders are in spring for the growth of early Peas and Cauliflowers, afterwards coming in for Tomatoes in summer and salad in winter. With only fifty acres of land no space can be wasted.

PEACHES AND NECTARINES.

There are seven houses devoted to the cultivation of these. The soil being of rather a heavy texture it suits the Peach admirably, and crops under glass are scarcely ever known to fail. The number of Peaches produced in the houses last year amounted to nearly 200 dozens. The varieties found to succeed best and give the greatest returns are Stirling Castle, Violette Hâtive, Gros Mignonne, Bellegarde, Premier, and Royal George, with Walburton Admirable for late use. A few trees of Waterloo are grown, but as a full crop of this variety is not to be depended on it is only grown for extra early work. These are generally started early in January, and ripe fruit picked in May.

Of Nectarines the earliest by far is Cardinal, the last new one of Mr. Rivers. It is well adapted for growing in pots for early work. A few trees not introduced into heat until January afforded ripe fruit early in May, as many as three dozen fruits on a tree. The second early is Early Rivers, then comes Lord Napier, these never failing to give perfect satisfaction. Pineapple, Elruge, and Victoria follow, with the like result. Of these 120 dozen were picked last year. The Nectarines are grown side by side with the Peaches.

MELONS.

These are in great demand during the summer months, and are in consequence produced in large quantities. They have six houses and a number of pits devoted to their growth, some houses producing three crops a year. A common mistake in growing Melons is to give them too large a body of soil. All the Melon borders at Frogmore have been reduced to half their former size, saving much time, and

requiring much less soil and heating material, while giving far better returns in number and quality of fruits. The varieties esteemed the most are some raised during the past few years in the Queen's gardens. Frogmore Orange comes in first, a white flesh with Orange-like exterior; Royal Favourite, admired for its robust constitution and splendid cropping quality, combined with high flavour. The Lady is thought much of on account of its delicious flavour and robust growth. Many of the older ones are also grown, and experiments often carried out with the view of obtaining improved varieties. The number of fruits obtained varies from year to year, but the average is 550, a daily supply being kept up from April until the end of November. The plants, as a rule, are grown about $2\frac{1}{2}$ feet asunder, and confined to one stem. This illustration (fig. 118, page 568), represents one of these plants, of which there were over fifty more like it, grown in a narrow pit.

STRAWBERRIES.

Forced Strawberries are in great demand during the spring and early summer months, and a daily supply is kept up from early in February until fruits are to be had from warm borders. Forced Strawberries are sent to her Majesty wherever she may be, whether in the South of France



FIG. 109.—LIBOCEDRUS DECURRENS (page 550).

or the North of Scotland; and it says something for the packing that complaints of damage on delivery are rarely heard of at Frogmore. In the season the daily supply is seldom under 10 lbs., and sometimes a great deal more—for a State ball or concert from 70 lbs. to 90 lbs. being supplied. The number of plants forced is 10,000. The weight of fruit gathered varies according to the season, ranging from 50 lbs. to 350 lbs. per month.

The variety which succeeds the best is *La Grosse Sucrée* (fig. 119, page 569), of which 7000 plants are prepared. This Strawberry has one serious fault as a forcer—namely, the luxuriant foliage it produces taking up too much valuable space. *Royal Sovereign* is also freely grown and much liked, with a few of *Vicomtesse Héricart de Thury* for the first dishes. *Royal Sovereign* is found to set its fruit freely in strong heat, and to produce heavy crops. *La Grosse* takes less room in the stoves than *Royal Sovereign*, and is found the very best variety for pot culture, always producing heavy crops of splendidly coloured, well flavoured fruit.

FIGS.

These, somewhat strange to say, have not been hitherto extensively grown at Frogmore, but last year two new houses were planted with trees, and an ample supply of their delicious fruits will soon be forthcoming. *Brown Turkey* is the variety chiefly relied on for the general supply.

CHERRIES.

Ranking amongst the most favoured fruits of her Majesty it is not surprising to find a number of admirably grown trees in pots for yielding, as they do, early and abundant supplies of fruit for the Royal table. Seventy trees are grown, mostly in tall pyramidal form rather than as low spreading bushes.

They are arranged in a span-roofed house running north and south, where plenty of air can be given, this and careful watering being amongst the most important points in their cultivation. The trees are placed in position early in January, ample room being afforded to allow free passage amongst them. They are kept cool, and when in bloom are shaken several times daily to disperse the pollen. Strong heat is avoided until the fruits have stoned, when the same temperature as a Peach house is maintained, and ripe fruit gathered in April. The varieties found most suitable for pot cultivation are given in the order of ripening:—*Belle d'Orleans*, *Early Rivers*, *May Duke*, *Governor Wood*, *Frogmore Bigarreau*, and *Black Tartarian*. The Fig has not hitherto been extensively grown at Frogmore; but last year two new houses were planted, and this delicious fruit will soon be provided in plenty. *Brown Turkey* is the variety chiefly relied on.

For preventing a blank between the forced and open air fruits, a tree or two on the walls are temporarily covered with spare sashes, with the ends matted. In this way the ripening of the crops is materially accelerated and the object in view accomplished.

TOMATOES.

Tomatoes are largely grown and a supply maintained all the year round. For this purpose, and for travelling long distances, no better variety has been found than the *Frogmore Selected*, which received a first-class certificate from the R.H.S. some time ago. Another of Mr. Thomas's raising, and appropriately named *Golden Jubilee*, was similarly honoured at the Temple Show this year. This new variety is regarded as the finest flavoured and most handsome golden Tomato that can be sent to the Royal table. Both are as hardy as any others, and we have seen them succeeding admirably in the open quarters in the summer time.

CUCUMBERS

Are grown in large quantities all the year round, and the variety *Frogmore Prolific*, recently certificated by the R.H.S., is found to be one of the best for all purposes; 1200 brace were cut last year.

PLANT HOUSES IN THE ROYAL GARDENS.

In giving a necessarily brief description of the plants at Frogmore, it should be stated that only those are grown which are serviceable for decoration either for indoor use or affording flowers for cutting. Large quantities of flowers are required daily either at Windsor Castle or for forwarding to Balmoral, Osborne, Buckingham Palace, or wherever the Court is in residence. Here are also prepared all the magnificent wreaths, crosses, and other designs which from time to time are sent by her Majesty on the death of relatives, distinguished people, and many of the Queen's domestic servants who pass away.

The first plant house we enter is a Rose house at the west end of the long range on the terrace. It is 50 feet by 16. The roof is covered by *Teas* and *Noisettes*, some of them being old veterans, with tree-like

stems, all planted in an outside border, the same as Vines might be. They give three crops of flowers a year, the first coming in in January and February—grand blooms and plenty of them. One variety planted twenty years ago deserves special mention, namely—*Pauline Labonte*. It is a charming variety, of robust growth, having large full blooms of a deep salmon colour and deliciously scented. Other varieties on the roof include *Homère*, *Madame Willermoz*, *Safrano*, *Maréchal Niel*, *Rêve d'Or*, and *Celine Forestier*, always beautiful under glass. In a corner connecting the conservatory with the Rose house, *Climbing Niphetos* was planted four years ago (inside border); this has done so well that it has been introduced from the corridor into the Rose house. It has now extended over 40 feet from the stem, and carries quantities of grand flowers. The back wall of the Rose house is well furnished with *Cassia corymbosa* and *Bougainvillea glabra*, both flowering profusely in their season.

CONSERVATORY AND STOVES.

Passing through the corridor mentioned we enter the conservatory, of which a side view is represented (fig. 120, page 570). This house, 195 feet long by 27 wide and 23 feet high, was erected in 1882. The centre bed is planted with huge specimen *Camellias* in variety, *Acacias*, *Palms*, *Dracenas*, and *Rhododendrons*, many of them reaching the apex of the house. Various other temperate plants clothe the pillars and walls, such as *Tacsonias*, *Coboea scandens variegata*, *Passifloras*, *Rhodochitons*, *Abutilons*, and others. This house is kept gay with flowers at all times when the Court is in residence. It is visited by her Majesty several times during the year.

At present large masses of *Hydrangeas Thomas Hogg* and *hortensis* are very effective, with *Lilium Harrisii*, *Callas* (800 are grown), also *C. Elliottiana*, with many spathes open, very rich in colour; *Pelargoniums*, *Gladioli Colvilli alba*, *Azaleas*, *Ericas*, *Cannas*, *Carnations*, *Cineraria cruenta*, in many shades of colour. Of the latter there are plants 4 to 5 feet high, with heads 3 feet through, making a most charming display. The side stages have depending from them drooping plants of *Asparagus decumbens*, *Isolepis*, *Tradescantias*, and others; and the vista looking through (see figure) from the end of house is further improved by hanging baskets of *Maidenhair Fern*, *Asparagus decumbens*, and *deflexus* alternately at different elevations. In summer these baskets are replaced by others of *Achimenes* in variety.

Joining the conservatory is the plant stove, 75 feet by 21, span-roofed, in two divisions. The first division is filled with a good collection of foliage plants, principally *Anthuriums*, *Alocasias*, *Marantas*, *Dracenas*, and similar plants; all the best varieties of *Nepenthes* and *Dipladenia boliviensis*, *Clerodendrons*, *Gloriosas*, *Allamandas*, *Aristolochia elegans* depend from the roof. Here also is a plant in a tub growing freely of *Nelumbium speciosum nuciferum*. This plant is seldom seen in bloom in this country, but here it expands many of its beautiful large (9 inches in diameter) creamy white flowers, the perfume of which is delicious. The next division is filled with *Crotons* in splendid colour, and include all the best varieties. All the occupants of these houses are taken to Buckingham Palace, Windsor Castle, and elsewhere when required. *Dendrobiums*, chiefly *Wardianum* and *nobile*, are growing freely in this house, some hanging from the roof and some on the side stages.

At the back of this stove—also opening into conservatory—is the Orchid house, 75 feet by 21 feet, in two divisions, this being hip-roofed, the back bed being planted throughout with *Gardenias* and *Stephanotis*, both a mass of flower (fig. 121, page 571). The *Stephanotis* is cut in long garlands, 6 to 9 feet in length. The first division is filled with *Laelia purpurata*, now in splendid bloom, *Cattleyas*, *Cypripediums*, *Oncidiums*, *Lycastes*, *Peristeria elata* (showing nine spikes), and a large number of *Anthuriums Scherzerianum*, *Rothschildianum*, *Andreanum*, with their brilliant spathes now in full beauty. The other division is filled with *Caladiums*, including all the best new forms in fully developed beauty, 300 more started later, coming into use towards the end of June.

Here we noticed a distinct variety of *Crinum* in robust health, and on inquiry were told that it was a variety from Ashantee, discovered on the spot where H.R.H. Prince Henry of Battenberg contracted his fatal illness, and brought to Windsor by Dr. Taylor. It has flowered twice since, and is shown in the illustration 121, page 571.

PALMS AND MUSAS.

At the north end of the conservatory, with which it is connected, stands the new Palm house. This, as will be seen on reference to fig. 122 (page 572), is a fine building of commanding proportions. It was built in the autumn of 1894 by Messrs. Mackenzie & Moncur of Edinburgh. It is 70 feet long, 34 feet wide, and 27 feet high, span-roofed, with an ornamental façade towards the north side of the gardens, from which in the distance it has an imposing effect. The roof is

covered with Cobæa, which depend to within a few feet of the paths in festoons, producing a light and graceful effect. The Cobæa is only temporary, and was planted with a view of hiding the girders as soon as possible, and it in time will give way to more ornamental and useful climbers. On the south side are Allamandas Schotti, nobilis, and Williamsi, and the north side, against rather a high wall, Bambusas nigra and aurea are planted. These come in most useful for decoration, as they can be used in so many ways in large plumes in positions where it is impossible to introduce pot plants, with peculiarly graceful effect.

Conspicuous in this house, and giving a fine tropical effect, are magnificent plants of the Musa paradisaica and sapienta, 25 feet high, although only planted ten months ago. All the best Palms for furnishing purposes are growing luxuriantly, ranging from a small size to giants of 20 feet, and include Kentias, Cocos plumosa and flexuosa, Seaforthias, Phoenix in variety, Thrinax elegans, and Arecas. All these will in a short time be conveyed to Buckingham Palace for the garden party decorations in honour of her Majesty's Diamond Jubilee. A special train is engaged to carry the plants and flowers required on this and similar State occasions.

Leaving the Palm house we come to the Musa house, 80 feet by 20 feet, span-roofed, in two divisions, one planted and now fruited with Musa Cavendishi for dessert. The side stages are filled with Pancratiums, Eucharis, and Hymenocallis. The other division is used for forcing Lilacs, Azaleas, and other shrubs during the winter and spring months, now filled with Gloxinias advancing to bloom. It is pleasing to see that show and decorative Pelargoniums are not, as in many gardens, overlooked. A house 80 feet by 12 is filled with sturdy plants in bloom, and consisting of all the best varieties. Behind this is a house the same size facing north, and is filled with Lilliums Harrisii, longifolium, and speciosum, Arums, Hydrangeas, and white Pelargoniums.

OTHER STRUCTURES.

We have only time to merely glance at the propagating house, Azalea house, pits full of Coelogynes, Cypripedium insigne in quantity; others with Fuchsias, Begonias, Kalosanthes, Poinsettias, variegated Eulalias and Chrysanthemums (2500 grown). Further on is a house containing a fine lot of Caladiums in small pots used for the margins of groups, many hundreds of the dainty argyrites, and the richer C. minus erubescens, besides hosts of Pileas and other dwarf plants for the same purpose. Next comes a fernery 80 feet by 12. This is filled with useful medium sized plants of Adiantums in variety, Pteris, and other decorative kinds. The roof of this house is covered with Clerodendron Thomsoni just coming in bloom. The plants are in pots, and are frequently used for indoor decoration, as they show to advantage when placed in climbing positions round windows and fireplaces.

To give an idea of the cut flowers supplied from the Royal Gardens, it may be stated that 3304 boxes of them were supplied last year, and this does not include wreaths, crosses, bouquets and buttonholes, which are in constant demand.

The foregoing are the main features in the principal houses devoted to plant culture, but by no means exhaust the list. Many of the fruit houses are made to do duty for plants from time to time, as we noticed

in passing that the floor of one Peach house was filled with strong plants of Liliam Krætzleri coming into bloom, another with Francoas, another with Campanulas, and so on, for no space is wasted anywhere that can be turned to account, while none is mis-used by being crowded with useless plants, and it must be said that throughout the department cleanliness and order rule supreme.

HARDY FRUIT.

As might be expected, this is a most important division of the Royal Gardens. It is entrusted to a responsible foreman, with ten men under him, wall fruit occupying the greatest share of attention. The total length of the garden walls are two miles and 200 yards, nearly all occupied with trained trees of one sort or another. Of late years several large old fan-shaped trees that produced little beyond wood and leaves have been gradually removed, and their places occupied by young trees under different forms of training—fan and horizontal, single and double cordon—which bear the best of fruit.

As showing the extent of 12 feet walls occupied by the different kinds of fruit, it may be said that a length of about 200 yards is devoted to Apricots, 750 to Cherries, 500 to Peaches, and 155 to Nectarines, nearly 1000 yards to Plums, and 1100 yards to Pears.

In the open are avenues of standard Apples and Pears, which have evidently been long established, with other avenues, more modern, of pyramids and bushes—not closely restricted, but freely grown, and real fruit producers. A practical point in connection with these trees, and there are many hundreds, is that the summer shoots are not "pinched to four or six leaves, and the resulting growths to one leaf as made," and so on throughout the season. The work would never be done, and besides close pinching is not needed with such trees, for this very good

reason, that all the main branches are so far apart, that there is never any crowding of the foliage. One summer pruning is all the trees have, if that, and the branches are studded with spurs, followed by ropes of fruit when the blossoms escape the frosts of spring. Most of the branches are 2 feet apart, some more, and the heavy crops of fruit keep the growths in subjection. Brief reference may be made to the kinds and varieties of fruit grown in the Royal Gardens appending the actual results.

PEACHES, NECTARINES, AND APRICOTS.

These are protected from spring frost by canvas blinds fixed to the top of the wall, and worked by pulleys. The trees are pictures of health, and the crops full; indeed, they seldom if ever fail.

Peaches are grown to the number of twenty-four varieties, the following succeeding the best, and provide a continuous supply the season through—Alexander, Waterloo, Crimson Gálante, Alexandra Noblesse, Stirling Castle, Grosse Mignonne, Bellegarde, Violette Hâtive, Walburton Admirable, and Barrington. Nectarines.—Early Rivers, Lord Napier, Pineapple, Victoria, and Elruge. Apricots.—Frogmore Early, Moorpark, Shipley's, Hemskerk, and Royal.

CHERRIES.

Cherries, as previously stated, being one of her Majesty's favourite fruits, receive a great deal of attention. Besides the great length of wall accorded the trees a square is devoted to them, having framework

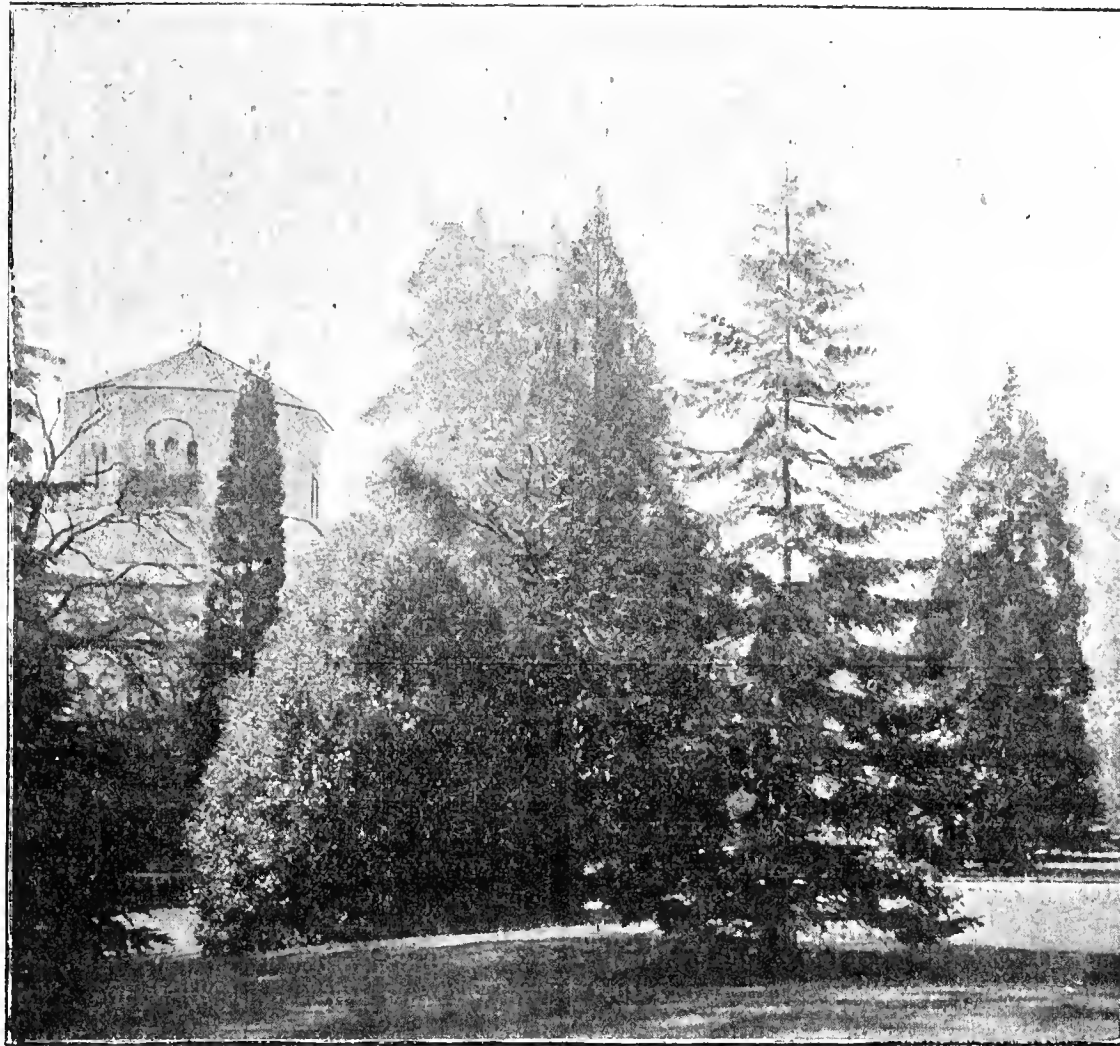


FIG. 110.—PRINCE CONSORT'S MAUSOLEUM AND MEMORIAL TREES (page 552).

fixed of sufficient height to carry the nets above the trees, so that the fruit is protected from birds and gathered without difficulty. The varieties most in favour are Early Rivers, Elton, Bigarreau Jaboulay, Black Tartarian, Governor Wood, Empress Eugénie, May Duke, Late Duke, Archduke, Florence, and Monstrous Bigarreau.

APPLES.

These are grown to the number of 250 varieties in trees of all sizes from maidens to orchard standards. The best *Dessert Apples* are—White Juneating, Irish Peach, and Mr. Gladstone, for July. Williams' Favourite, September Beauty, Red Astrachan, Devonshire Quarrenden, Lady Sudeley, and Gravenstein, for August and September. Ribston Pippin, Cox's Orange Pippin, Mother Apple, Rosemary Russet, King of Tomkin's County, Okera, King of the Pippins, Brownlee's Russet, and Royal Russet, October and November. Duke of Devonshire, Annie Elizabeth, Claygate Pearmain, Adam's Pearmain, Scarlet Nonpareil, and Peck's Pleasant, for December and January. Fearn's Pippin, Baddow Pippin, Reinette de Canada, Lord Burghley, and Court Pendu Plat, from February to May.

The best *Kitchen Apples* are Lord Suffield, Keswick Codlin, Ecklinville, Prince Bismarck, Cox's Pomona, the Queen, and Frogmore Prolific, for August and September. Red Hawthornden, Warner's King, Blenheim Pippin, Peasgood's Nonesuch, Domino, and New Hawthornden, for October and November. Bramley's Seedling, Tower of Glammis, and Betty Geeson, for December. Lord Derby, Gloria Mundi, Northern Greening, Schoolmaster, and Newton Wonder, for January and February. Lady Henniker, Wellington, Sandringham, Dutch Mignonne, and Royal Late Cooking, for the remainder of the season.

PEARS.

Of these there is a great assortment, and the trees of all forms and sizes are in admirable condition. A feature of this garden is provided by the low arched trellises which flank the central walk. They are probably about 4 feet high, and have a span of 5 or 6 feet. All strangers notice them as something of a kind they have not seen before. They were designed probably so that a view could be had of the garden beyond. They are devoted to Pears, and although it might be supposed the blossoms would be much exposed to and injured by frost, we have seen excellent crops of fruit from end to end of the arches, and very convenient for gathering. A glimpse of the Frogmore Pear arches may be obtained in fig. 123, page 573, which shows the broad central walk and the gardener's house in the distance.

Dessert Pears.—The following are found the most suitable, Doyenné d'Ete and Citron des Carmes for July. Jargonelle, Beurré Giffard, and Clapp's Favourite for August. Williams' Bon Chrétien, Beurré d'Amanlis, Madame Treyve, and Colmar d'Été for September. Louise Bonne of Jersey, Fondante d'Automne, and Beurré Hardy for October. Thompson's, Seckle, Doyenné Boussoch, and Marie Louise for November. Comte de Lamy, Bergamotte Esperen, Beurré Bosc, Doyenné de Comice, and General Todleben for December. Winter Nelis, Josephine de Malines, Knight's Monarch, Beurré Sterckmans for January and February. Olivier de Serres, Ne Plus Meuris, Beurré Rance, Doyenné d'Alençon, Bergamotte Esperen, and Easter Beurré for the remainder of the season. *Kitchen Pears.*—Vicar of Winkfield and Uvedale's St. Germain.

PLUMS.

Plums are under the average this year in cropping, having suffered from spring frost. They are grown in forty varieties, the best of which are as follows: *Dessert.*—Early Favourite and The Czar for July. Green Gage, De Montfort, and Denniston's Superb for August. Angelina Burdett, Cloth of Gold, Jefferson, Kirke's and Transparent for September. Blue Impératrice and Ickworth Impératrice for October. The best *Kitchen Plums* are The Sultan, Orleans, Prince Engelbert, Red Magnum Bonum, White Magnum Bonum, Pond's Seedling, Victoria, Diamond, and Autumn Compôte.

Nearly 3000 young fruit trees of one sort or another have been planted during the past five years.

STRAWBERRIES.

Strawberries are grown to the extent of 2 acres. Most of the new varieties are included in the collection, which number fifty named sorts. Several new ones raised by Mr. Thomas within the last few years are being carefully tested on a border set apart for the purpose, some of which promise to occupy an important place in the list of first-class Strawberries. Sir Trevor produces ripe fruit several days in advance of any other, Laxton's No. 1 previous to this being looked upon as the earliest Strawberry in cultivation. Cold nights during the early part of

May did considerable damage to the crops in general, but at Windsor a thick layer of straw was placed between the rows early, and allowed to remain loose. This can be quickly thrown over the plants when frost threatens, to protect the early blooms from injury. When no longer required for that purpose it is levelled down as a bed for the fruit to rest on. The crop looked very promising indeed.

The varieties found the most useful on the heavy soil are as follows, placed in order of their ripening:—Laxton's No. 1, poor flavour; Noble, large but insipid; Royal Sovereign, a few days later, with good brisk flavour, and well worthy of the name it bears. La Grosse Sucrée comes next, and does well. Sir Joseph Paxton, Sir Charles Napier, Countess, President, and Leader closely following, the last named being one of the best cropping Strawberries in cultivation. For late supply Waterloo is a great favourite. Other varieties for this purpose are Commander, Latest of All, and Frogmore Late Pine. This season is quite a fortnight later than last, when the first punnet of Laxton's No. 1 was gathered on May 18th.

The best hint conveyed here, and which ought not to be lost sight of, is the "strawing" the beds. This is not usually done till the fruit is commencing to ripen, and injury is often done in packing it under the trusses. By piling it loosely between the rows just before the flowers open the flowers are sheltered and may be easily protected on a frosty night by scattering it over them. The litter then only needs pressing down to keep the fruit clean. Two purposes are thus served, and much less time occupied than by the old method of late application.

SOME RESULTS IN THE ROYAL GARDENS.

That fruit is produced in large quantities will be seen by the following figures, taken from the garden book for 1896:—

Apples,	2050 dozen and 450 bushels.
Apricots,	420 "
Cherries,	1220 lbs.
Plums,	390 dozen and 500 quarts.
Green Gage,	74 " and 40 quarts.
Pears,	2021 " and 22 pecks.
Peaches,	400 "
Nectarines,	130 "
Gooseberries,	1550 lbs. and 262 quarts.
Currants—Black,	640 lbs.; Red, 1406 lbs.; White, 173 lbs.
Raspberries,	656 lbs.
Strawberries,	2000 lbs.

These figures relate to fruit grown in the open gardens. The "dozens" indicate selected dessert fruits; the bushels, pecks, and quarts kitchen fruit; pounds, the supply for both purposes. It is a goodly total, even for a Royal household.

Black Currants have suffered from frost, and the crop will be under the average.

VEGETABLES.

Having previously given the dimensions of this immense garden, and indicated the nature of the soil, the system of cultivation and of cropping may be briefly referred to, and the great provision made and supplies obtained concisely recorded.

As regards the system of cultivation and rotation of crops, the following is as closely adhered to as possible. A few acres are trenched from 2½ to 3 feet deep, and heavily manured every year. This area is cropped the first year with Peas, followed by winter salads, and the following year usually occupied with Brussels Sprouts. (The best Cabbage Lettuce for winter and spring work is still the old Stanstead White, and the more open, exposed, and dry the aspect is the better it is found to suit the requirements of the plants in winter). For economy of management this land is not again dug with the spade for three or four years, but the horse and the plough are brought into requisition instead to expedite work, with a rotary cultivator with strong slightly curved prongs to break the clods. Another system adopted is to manure heavily in beds for Celery, the next season cropped with summer Onions, autumn planted Cabbages following, then early Potatoes, Strawberries, and spring Broccoli in rotation.

Many thousands of roots and crowns of Asparagus being required annually for forcing purposes alone, new beds are formed and planted extensively every year. The site for one of these beds is always open as a receptacle for garden refuse as a foundation, and turning this refuse at the same time to good purpose by converting what is often wasted into good and fertile soil. On the top of this refuse is spread a layer of good decayed manure, to be covered with soil, that was thrown out in making the wide trench, before the beds are planted. By following the system success is always attained. It is a simple and excellent method, worthy of more general adoption.

In general summer culture importance is wisely attached to the timely and frequent use of the hoe. It was found that the Sproughton hoe is a favourite with the men, who seemed to enjoy the work, as no doubt they did, of skimming it through the surface between rows of young Carrots and other crops, deftly turning it up as they went along to pick the weeds from among the plants with the pointed prong. "Do you like the new hoe?" was asked of one of the workers. He seemed astonished at what was perhaps to him a stupid question, as he replied, "Like it, sir? I should think we do. It's a fine thing, sir, I can tell you;" and on he went, skimming and pronging, as happy as a prince.

Little surprise need be entertained at the enormous quantities of produce required from this garden, as when her Majesty is residing at Windsor Castle, upwards of 300 (of course including servants) dine every day. The number is not so large at Balmoral and Osborne, but supplies are sent from Frogmore daily.

Of Asparagus, previously mentioned, three acres are grown. Cutting begins (in frames) in November, and is continued, forced and naturally grown, for about seven months.

Early Potatoes are grown on beds of leaves, in heated pits, and on borders sheltered by the fruit walls; also about 70 tons of late sorts are grown and pitted for winter and spring use. Such old varieties as Dunbar, Regent, and Fortyfold are retained for their superior quality.

Celery for early use is grown in the ordinary way, in single rows, but the main crop is grown in excavated beds 6 feet wide, and planted across in rows. No less than 40,000 plants are put out on this system.

Onions raised in the autumn are planted out 1 foot apart for summer use, and in favourable seasons 500 bushels, raised from spring sowing in the ordinary way, are stored for winter.

Nearly 30,000 Lettuces were supplied last year, as many as 120 dozens, on special occasions, having been used in one day. Salad is an important item, and in dry seasons it is difficult to maintain a good and regular supply. Except for the early crops the seed is sown in drills and the plants thinned, not transplanted, as when undisturbed they are less liable to "bolt."

The main crop of Peas, in rows 110 yards long, would extend some five miles, and some of the reliable and well-tried sorts are sown by the bushel.

For early crops (cutting in June) 2500 Cauliflowers are potted in large 60's and wintered in cold pits; some 40,000 others in variety being planted in succession; 12,000 Brussels Sprouts have recently been planted out, 30,000 Savoy, the same number of Cabbages, 10,000 Scotch Kale, 25,000 Endive, and Broccoli of sorts on the same large scale.

Horseradish is frequently seen in gardens in some out-of-the-way corner, and perhaps only required at Christmas; 5000 sticks are required here annually; 20,000 Seakale crowns are grown yearly, and lifted for forcing; 600 lbs. of Tomatoes are required for bottling (sauce) alone every autumn, besides the daily supply, nearly all the year around; and so we might go on, but it is not necessary, the facts adduced, for facts they are, sufficiently show the important part the garden plays in supplying the essentials of health to the homes of the Queen.

This could not be done, in the way it is, in the absence of closely studied economy—making the utmost use of all resources, and reducing waste to a minimum. It could not be done without knowledge on a variety of subjects, sound judgment, clear foresight, constant watchfulness, cultural skill, unity in effort, and devotion to duty; and it is just because all these essentials to success are present that the great gardens of the Queen are so creditable to all who share in making them so productive and maintaining them so well.

WINDSOR GREAT PARK.

As previously indicated, Windsor Castle and Frogmore are within the Home Park, but there are gardens or features of interest beyond—namely, in the Great Park—an area of woodland and forest scenes of some 20,000 acres. This is reached from what is known as the "Long Walk," a term which is in no sense expressive of the imposing dignity of this glorious avenue of English Elms. A delightful drive of some two or three miles, affording a glance at Prince Albert's Plantation on the left, past noble Beeches and through picturesque groves, we arrive in a large opening near a pretty church, opposite which is a cosy mansion, and there we make a call.

THE ROYAL LODGE.

Such is the name of this charming sequestered home, recently, we understand, placed by her Majesty at the disposal of Lady Churchill. A long and lofty conservatory is the connecting link of the mansion with the park. It is really an avenue of ancient Camellias, with large tree-like stems, but the shrubs, pruned to form tall hedges of rich foliage, and, in season, studded with blooms. These Camellias must have been planted at the time of the first introduction of some of the varieties. With them is also probably one of the oldest "trees" in the kingdom, with woody stems 12 to 15 inches in circumference, of the purple Cape Milkwort, *Polygala oppositifolia* *Dalmatiana*. An old tree of the Silver Wattle, *Acacia dealbata*, and the trumpet-shaped flowers arching over the path, of *Brugmansia*, or *Datura sanguinea*, the growths issuing from a thick rugged stem, are noticeable in the collection.

The pleasure grounds are also of the old world order—huge masses of Rhododendrons, wide spreading bushes or low trees of American Azaleas, with *Kalmias* of such stature as are rarely seen. The Sikkim Rhododendron *Falconeri* seems also happy in the enclosure. More modern are the Rose beds of Crimson Rambler and others, managed on the long rod system, the strong summer growths being trained almost horizontally about 18 inches from the ground to produce, as they do, sheets of flowers. A quiet, secluded, charming place of rest is Royal

Lodge, but we must leave it for a glance at something not less interesting in its way.

CUMBERLAND LODGE AND ITS VINE.

After a few minutes' drive we reached the vinery. With the Lodge and its gardens we have nothing to do. They belong to Prince Christian, who has his own excellent gardener in Mr. Greyer. But it may be said that the term "Lodge," as usually accepted, does not adequately represent the huge, plain, massive building to which it is here applied. The Vine her Majesty retains as her own, and hence it comes under the control of Mr. Thomas, who watches it with solicitude, and is looked to for guidance in routine by its attendant, who is anxious that nothing shall be left undone that can minister to its health. It is worthy of all the thought and care and skill that is bestowed upon it, and for which it is this season making a particularly gratifying response. "Breaking better than ever," and "showing capitally," are cheering observations. This is, in part, it may be expected, the result of the longest possible winter's rest, and in part, the effect of removing weakly laterals, and encouraging the strong to extend wherever there is room for leaf expansion. Sound policy this, without a doubt; and, it may be said, the only means by which the old Vine can be invigorated, beyond what can be done for its roots. The huge Vine is planted in the centre of the

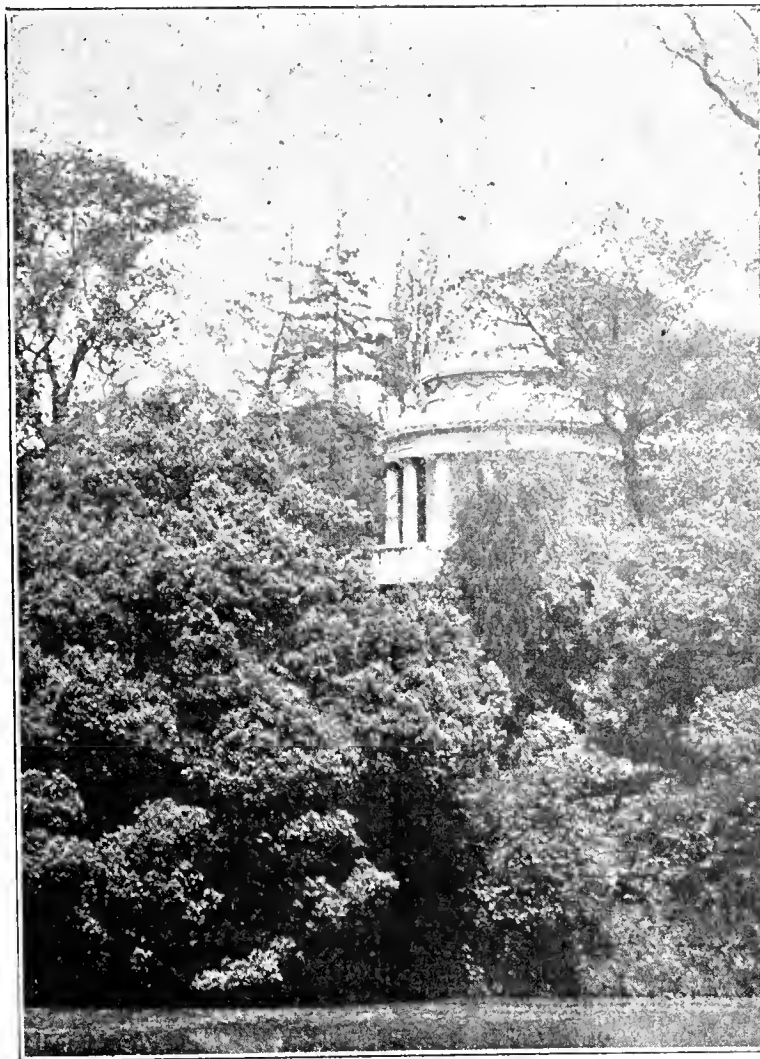


FIG. 111.—DUCHESS OF KENT'S MAUSOLEUM (page 552).

house, and the roots extend to no one knows exactly where; but endeavour is being made to induce a new surface layer from the stem, and not without success; and just as these increase and multiply there, and young rod extension is encouraged, so will the grand old Vine be benefited, its vigour increased, and its life prolonged.

Great as is the extension of this remarkable Vine, covering as it does 3450 square feet of roof space, it is all the same restricted, and has been for some years. How far it would extend if additional space could be afforded it is difficult to say, but as past extensions have led to greater invigoration, similar results must almost of necessity follow if it should happen in the course of time that means could be devised for giving it further liberty. The Grapes, about 2000 bunches, produced by this splendid Vine are of the first quality, and we suspect they will be finer than usual this year, which is something to say for a centenarian.

personal present to her Majesty by the contributors to the fund. It is reached by a curving drive, flanked by recently planted belts of Rhododendrons.

VIRGINIA WATER.

No portion of the Great Park (to which it may be said the public has access) is more beautiful than that known as Virginia Water. "Menzies," late surveyor of the Park, mentions in his history of it that the name is derived from a brook that originally drained this portion of the Park, and this brook was named "Virginia," after Queen Elizabeth, the Virgin Queen. The extent of the water is now 300 acres, which takes bold sweeps between richly wooded banks, rising in places to something like mountains of foliage, of Beech, Birch, Firs, and Willows, not in indiscriminate mixture, but evidently in accordance with well-considered design.



FIG. 112.—BUCKINGHAM PALACE (page 562).

It should be added, that almost adjoining the vinery is one of the schools supported by the Queen for the education of the children of the many workmen who are engaged in the Great Park; and further, that ample ground is attached for the teaching of useful gardening to the scholars, a practice that has been in operation here for many years.

THE EQUESTRIAN STATUE OF THE PRINCE CONSORT.

Proceeding from Cumberland Lodge southwards we emerge from the trees into a large opening, known as "Smith's Plain." Some distance to the right stands an equestrian statue of the late Prince Consort, looking towards Windsor. Ten years ago many thousands of pounds were collected by the women of the United Kingdom as a Jubilee gift to the Queen. This her Majesty devoted to the establishment of the Royal Nurses' Institution, with the gratifying result that already hundreds of trained nurses are available for ministering to the wants of the sick and destitute poor; and as the funds increase so will these real sisters of mercy, to remind of the tender heartedness of the Queen, of whose application of the gift this statue is a substantial memorial—a

Hughes, in his recent "History of Windsor Forest" * says: The laying out of Virginia Water was commenced in 1746 by the Duke of Cumberland, who was appointed chief ranger in that year. He installed Thomas Sandby, Esq., as deputy ranger, this gentleman aiding him in the works of improvement. The first Virginia Water was apparently completed between 1750-52, for a plate bearing the date 1753 shows a lake of considerable size, with the Belvidere in the distance. This was taken from a picture by Paul Sandby, Esq., an artist, brother to Thomas Sandby, who aided the Duke in designing the Waters. About this time the Duke left England and was engaged in wars in Hanover, returning in 1757, when, being in disfavour with the King (George II.), he threw up his military appointments and retired to Windsor, where he found congenial occupation in further laying out and planting the hill-slopes of the Virginia river. The *Annual Register* of 1768, speaking of a deluge of rain that fell in that year says: "The late Duke of Cumberland's fine waterworks in Windsor Forest were entirely destroyed."

* Ballantyne, Hanson & Co., 1890.

The lake was restored by the second Duke of Cumberland, under the direction of Mr. John Pitt (Royal Surveyor of Woods), but some time elapsed before its completion. "Indeed, it seems not to have been finished until 1790, at least in its present form."

There is a tradition that French prisoners of war were employed in this gigantic work, but of this there does not seem to be any public record.

THE ROYAL FISHING PAVILION.

As an occasional resort of the Queen, this surely is one of the most delightful. The Swiss chalet-like building is situated on the margin of the lake, overlooking its greatest area. It is reached by a short flight of steps from the garden, and we can pass right round the building under the verandah, the wooden platform and balustrades extending over the water.

The garden is circular in form, completely enclosed by trees and

In the distance is a bright knoll, a sort of spur raised and planted with the Golden Cypress, choice Rhododendrons, and Mollis Azaleas. The drive curves between the Pines with their undergrowth of bracken to the Pavilion. It is surrounded by broad gravel promenades bounded by raised banks, which have recently been transformed into narrow terraces sloping to the Pavilion, and planted with *Erica carnea*. Nothing could be more appropriate, for they will be beautiful in the spring and agreeable at all times.

The site of the Pavilion is high above the surrounding ground. On the north and west we looked down on masses of Rhododendrons, and over them across a wide stretch of country, including Laffans Plain; on the right, as if in a dell, and completely hidden by tall Hollies, are the kitchens and other domestic appurtenances of the Pavilion, which is entered from them by a subterranean passage.

In the pretty gardens of an official is a naturally grown standard

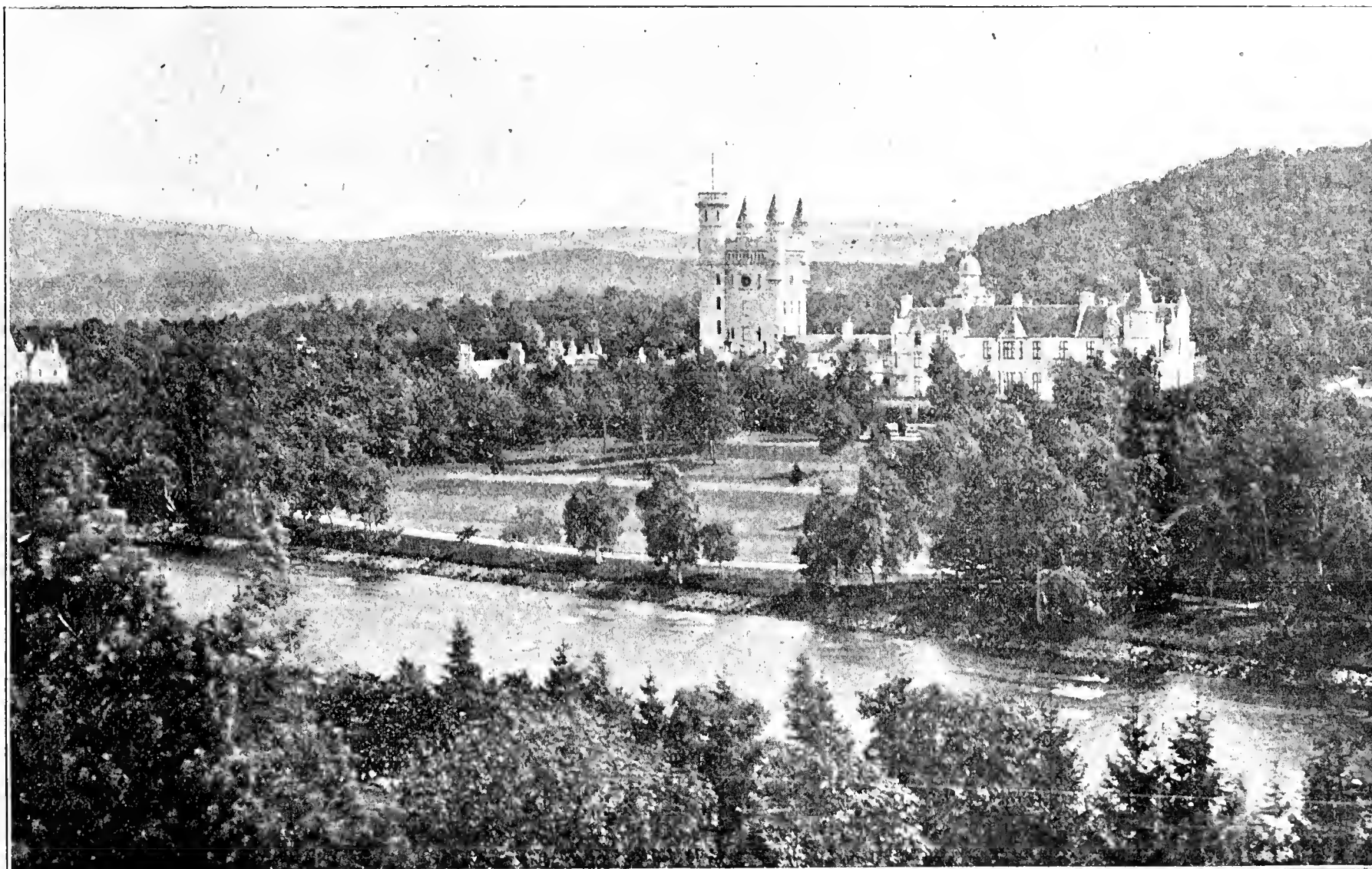


FIG. 113.—BALMORAL CASTLE (page 565).

evergreens, so closely grown as to be of hedge-like density. There is an encircling path and a central lawn, this containing a modest fountain and a noble Cedar, with inviting seats under its far-spreading branches. Near the margin of the lawn is a series of flower beds, which are kept gay in spring and summer. In order faultless, a more charming spot than this pavilion garden it would be hard to find. At the end of the "Ascot week" H.R.H. the Prince of Wales and other members of the Royal Family are said to frequently spend an evening on the lake—beautiful Virginia Water. Thus end our brief references to some of the interesting and attractive features of Windsor Great Park, and now we pass from Royal Windsor.

ROYAL PAVILION, ALDERSHOT.

In what may be termed the wilds of Surrey about 14,000 acres of land are devoted to army purposes, and near the busy town of Aldershot her Majesty, as head of the Army, has her military home. At the entrance to the grounds near the barracks is a large expanse of gravel, overlooked by official residences and guard rooms, recently covered with creepers and Roses. The general effect has also been enhanced by the planting of trees, the tender green of the Limes contrasting well with the forest of Pines beyond.

Peach tree, not attached to a wall, which last summer ripened fifteen dozens of excellent fruits of the Royal George type; and young standard Apricot trees have been planted, in the hope that they will bear and ripen crops of fruit in due time, as no doubt they will when the summers are bright, for they vary even in salubrious Surrey.

But we must leave this Royal enclosure, of perhaps nearly a hundred acres, with its forest-like surroundings and quiet solitude. Quiet as it was then, but soon will be heard the war trumpets and the drums, the rattle of musketry and the booming of guns, when the troops are called out for review, and to fight a mimic battle on Laffans Plain.

HAMPTON COURT.

Cardinal Wolsey surrendered Hampton Court to the Crown in 1525, and with the exception of a few years in the sixteenth century it has remained a Royal residence to this day. It is, by the grace of her Majesty, the home of many families, and has the population of a good-sized village. As is well known, the grounds and gardens are open to the public, save a very small portion, including the orangery and famous Vine, this portion being retained by the Queen, but the public have free access to the vinery under certain regulations, and it is recorded that 6000 visitors have availed themselves of the privilege in one day.

The chief object of our visit was the Vine. Some few years had elapsed since the previous inspection by the writer, and it was thought then with regret that it betrayed symptoms of weakness, as undoubtedly it did, and when an ancient Vine like this takes a wrong turn it is no easy task to effect any material invigoration. It was with some surprise then and much gratification that the Vine was found to be in unmistakeably better condition than it was several years ago. The bearing wood is stronger, the leaves larger, and the bunches finer than was the case then, and the whole Vine, save its massive stem, has a distinctly younger appearance.

In an attractive little souvenir of the old Vine, dated August, 1894, but *minus* the name of the author, though we suspect his initials are "O. T.," it is stated the Vine was planted in the reign of his Majesty King George III., and it is therefore 129 years old. The girth of the stem, when measured for the purpose of the souvenir, was $3\frac{1}{2}$ feet, the branches covering an area of 2200 feet, much less, it will be seen, than the Cumberland Lodge Vine, which it is supposed is an extension of this at Hampton Court, as furnishing the cutting from which the greater giant was raised.

The Vine is said to have produced (by dangerous overcropping in the past) 80,000 lbs. of Grapes, and surely then, having done so much and for so long, it ought not to be overpressed in its old age. It will not be.

The old Vine is cherished by its Royal owner, the chief gardener, his trusty assistant, and by the public. The attendant thinks it has a long and fruitful career before it, because the laterals now "bulb up" so well near the base—an observation not often heard, but all the same, with something in it.

We should like to say more about Hampton Court and the Queen's 300-years-old Orange trees, also to explode a popular fallacy, for the circulation of which Mr. Graham is largely responsible through his "Guide"—namely, that the interesting old Dutch gardens were laid out by Loudon and Wise. Mr. Wise was taken as a partner in the Brompton Nursery in 1694, while Mr. Loudon was not born till 1782. The gardens were laid out by Loudon and Wise, who were partners, and both of them Royal gardeners; but the allotted space is filled, and the subject cannot be pursued.

THE STAFF OF THE ROYAL GARDENS.

For the management of all the foregoing gardens and pleasure grounds of the Queen—the trees, the drives, and the supplies of all kinds—Mr. Owen Thomas (fig. 124, page 574) is responsible, his staff numbering from 125 to 130 men. For the purpose of effective working there are departmental foremen, each having his staff of men, who are responsible to the head gardener, who speaks in high terms of the ability of his experienced coadjutors.

The kitchen garden at Frogmore is in charge of Mr. Chas. Marr, who has held the position for upwards of fifty years.

The plant department is in the charge of Mr. T. Edwards, who has held the position for upwards of twenty-four years, and who also assists Mr. Thomas with office work.

The fruit under glass is in the charge of Mr. J. Dunn, who counts about fourteen years' service.

Hardy fruit is under Mr. J. Brown, also about fourteen years' service.

Frogmore House Grounds, until recently, were under Mr. J. Cruickshank, who had worked in the Royal Gardens for fifty years, and since his death have been in the charge of Mr. Barker.

The Castle gardens and slopes are in the charge of Mr. J. Chennell, who has close on forty years' service to his credit.

The roads and plantations are under Mr. J. Hampton, of about forty-five years' service.

The Royal Lodge gardens have been in the charge of Mr. J. Green for about four years; Hampton Court private garden and the old Vine under Mr. J. Jack for fourteen years; and the Royal Pavilion, Aldershot, under Mr. J. Carruthers for thirteen years.

All the foremen have excellent cottages and gardens round them, and all live within easy distance of their work. If through long years of service any of the men are incapacitated, a provision is provided for them for the rest of their lives. Their wages are not stopped through any temporary illness, and altogether every consideration is shown to them.

All constructive work and repairs in the Royal Gardens are carried out by her Majesty's Office of Works, including all boilers, of which there are twenty-six.

In a large establishment like this, with the various departments in the Castle to supply, it is evident that business must be conducted in a systematic manner, first to provide and then to insure the safe and

punctual delivery of goods, and to avoid confusion. Every article that leaves the garden, whether in the form of 2 or 3 tons of Potatoes, a bunch of herbs, a bouquet, or anything else, is entered in a day book, and charged at market prices, a list showing quantity and weight being sent to the heads of departments concerned every day; also a similar list, giving the daily total supplied, to the Master of the Queen's Household.

A monthly statement is sent to the Board of Green Cloth, also quarterly returns and balance-sheet, showing every item bought for the different departments under the head gardener's superintendence, and the value of produce supplied for the corresponding period. The Royal Gardens, which are in splendid condition throughout, are in the department of the Lord Steward of her Majesty's Household.

The illustrations of subjects represented in the Royal Gardens of Windsor and Frogmore are prepared from photographs by Messrs. Russell & Sons, photographers to the Queen, Windsor and London.

BUCKINGHAM PALACE.

THE traveller along Buckingham Palace Road or Grosvenor Place, though interested and curious regarding the London residence of her Majesty the Queen, would not conceive that beyond those high walls was one of the most charming retreats in or near London. The popular idea is that the grounds or gardens are comparatively small, but this impression is quickly dispelled when the inside is reached. Then the size seems to grow very appreciably, increasing as the walks between the trees, over the bridges across the lakes, and through the dells are traversed. There are acres of water, acres of lawns, and acres of shrubberies, and so skilfully has the planning been carried out that the gardens appear considerably more extensive than is actually the case. Still we are reminded that we are in London by the rumble or the hum of the great tide of traffic that seems ever flowing between Hyde Park Corner and Victoria Station.

Historically Buckingham Palace is very interesting, and has seen many changes. Originally the site was a Mulberry garden, but in 1703 old Buckingham House was erected by John Sheffield, Duke of Buckingham. A remnant of the Mulberry garden remains in one solitary tree standing near the house of Mr. J. R. Stirling, the gardener who acted as our guide. In 1761 the house was purchased by George III., and it was not until 1825 that the work of demolition was commenced to make room for the present Palace on the same site. In July of 1837 the new erection was finished, and occupied by the Queen. It was from the exterior of this Palace that the Marble Arch, so familiar to most people who have visited London, was taken down for re-erection in its present position at the Cumberland Gate of Hyde Park, this work being done in 1851, two years prior to some extensive alterations that were made in the structure.

At the outset it must be understood that the pleasure grounds are mainly artificial; the ornamental water has been formed, huge mounds have been thrown up, and cool, secluded walks wind beneath the handsome trees. Referring primarily to the lake, which occupies an area equal to 8 acres, we see with what consummate skill the planting has been done so as to give the visitor fresh views across the water, with glimpses of the Palace at intervals between the trees. It is a noble piece of work, executed under the direction of some master mind whose appreciation of natural beauty was of the very keenest.

At the head of the water, which is really a series of lakes, stands an enormous mound built up, it is but natural to surmise, with the soil taken out from the waterway. Its steeply sloping sides are clothed with trees and shrubs, and it is surmounted by a handsome pavilion. It serves a twofold purpose—namely, to screen from the view the Royal Mews, and to command from its summit the whole panorama of the gardens and the Palace. We worked our way up by gravel paths, with their verges of grass, and richly were we rewarded by the arboricultural picture spread beneath us. The windings of the lake were clearly seen, on whose placid waters ducks and other waterfowl were floating lazily in the sun.

It was then, too, that we realised to the full how splendidly the grounds are wooded, and with what a variety of trees. Interesting and instructive—the former as showing the extent of the demesne, and the latter as illustrative of what trees thrive best amidst the smoke of our vast metropolis. There was no difficulty in arriving at a conclusion as to the best tree of all, for the stately specimens on all hands proclaimed the Plane to be the tree of trees. Dozens, nay, hundreds of kinds have been planted at various times; but of all those mentioned have done the best, though Thorns are little inferior, and Elms are very fine.

Of flowering trees and shrubs Laburnums are splendid, as are Guelde Roses, Rhododendrons, Azaleas, Weigelas, and Lilacs. Each of these flowers with freedom, the first named being particularly effective at the time this visit was made. Notable also is a beautifully coloured Copper Beech, conspicuous more for its form than for its size. It is growing to one side, due in all probability to the graft having been taken from a side branch instead of a leader, and obeying some natural law in growing outwards, as it would have done had it remained upon its parent.

Trees as a rule, except the Plane, do not retain their freshness long after midsummer in the London atmosphere. An instance of its effect may be cited in a long Ivy-covered brick wall, to which the growths will not—cannot—cling, but all of them have to be secured with nails and shreds.

As is well known, her Majesty does not utilise Buckingham Palace

In its ordinary bedding plants, such as Zonal Pelargoniums, Lobelias, Calceolarias, and others are grown, and as this enclosure is reached by winding paths, it comes with many charms. The plants inserted were splendidly healthy, and should give a good display.

On the left hand side of our illustration, but obscured from view by the tree, stands an old conservatory of considerable dimensions, in which Zonal Pelargoniums are luxuriating. The structure, which is very lofty, is supported by columns, up which the plants mentioned are trained; and very beautiful they looked, with their brilliant flowers. No other plants could be induced to grow so satisfactorily here. On the side stages are similar plants, while the centre is occupied with stately Palms, in splendid health and condition. Truly are the grounds of Buckingham Palace charming—an ornament to London, and a credit to Mr. Stirling, in their cleanliness and the health of the occupants.

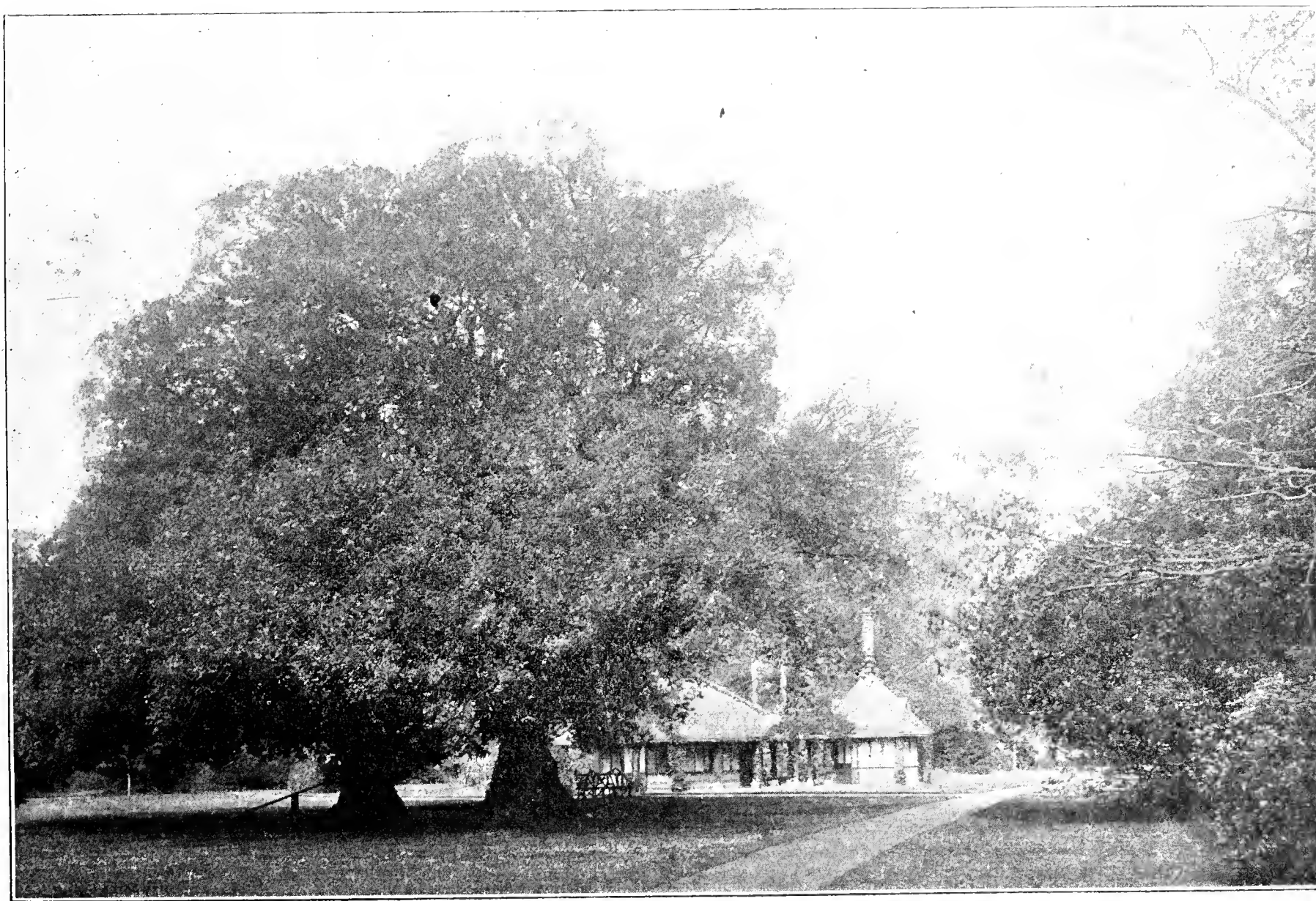


FIG. 114.—THE QUEEN'S TEA ROOMS AND EVERGREEN OAKS (page 552).

as a residence to any material extent. Yet it is of great value, and in much demand for the holding of the Royal garden parties, to which purpose its grounds are so admirably adapted. On the extensive lawns before the noble building large marquees are erected, and those honoured by invitations can wander at will beneath the trees and by the water. Look for a moment at the photographic illustration (fig. 112, page 560) by Mr. H. N. King, Royal photographer, Avenue Road, Shepherd's Bush, W. This will convey an idea of the garden-front of the mansion, and it is on the lawns in the immediate foreground that the marquees above alluded to are placed. The grass has a gentle slope to the water, shown in the picture, and surely no better place could be wished for or found in London for a similar purpose. The mansion is imposing in its air of substantiality, and the carving on the facade is very fine.

Gardening, as the word is usually interpreted, is not very extensively carried out here—indeed it is really limited. There are many borders containing old-fashioned flowers, but the one geometrical garden is small.

OSBORNE HOUSE.

Fair is the Isle of Wight, varied are its pastoral pictures, and here far from the busy haunts of men is the southern home of our Queen. We have spoken of Windsor Castle with its multitudinous departments, and of Buckingham Palace, both of which are Crown residences where life runs on at high pressure. Now we would transport the reader to Osborne House, one of the two private domains of the Queen, and the one about which is enwrapped many sacred memories of the late Prince Consort. There are no evidences of modernity here save where they tend to comfort. On the contrary, the seclusion and peacefulness form perhaps its greatest charm. True examples of English enterprise may be seen from the seashore in the mighty ships that pass to and from Southampton Water, or which may be observed ploughing their way towards the busy town of Portsmouth.

Though it is our intention to regard the Osborne demesne horticulturally rather than otherwise, it may be well to state when her

Majesty first became possessed of it and what has been done to improve it since that time. The estate was purchased so far back as 1845, and the improvements were at once commenced. The chief of these was the rebuilding of the mansion, which is now a very handsome structure. An excellent idea of the style of architecture is afforded by the photographic illustration (fig. 126, page 576), which shows the sea front. "Imposing and substantial," is the verdict of most of those who look on it. Within, the style is one that tends greatly towards comfort, for here, as at Balmoral, the Queen seeks repose, and it is doubtless to these two resting-places that must be ascribed the remarkably vigorous retention of the faculties for which her Majesty is renowned. To us it seems no better place of repose could be found than Osborne House, with its delightful situation and magnificent surroundings.

Beautiful indeed are the grounds, with their miles of sea-board. The character of the land is very undulating, and it is surprising to see how almost all kinds of trees and shrubs luxuriate. Thousands have been planted, and probably hundreds of them have a history of intense interest. As progress is made through the estate, trees, mainly coniferous, are constantly being seen, whose labels tell by whom they have been planted, and when. Almost, if not quite, all the members of our Royal Family have added to this arboricultural collection, while scions of other Royal houses have also done their share. The lover of trees would find much to interest him in the specimens at Osborne, for well as the majority have grown, some few have barely survived, while others have succumbed. We could not attempt here to give particulars of the many trees—space could not possibly be found; but it may be said that the *Thuias*, *Retinosporas*, *Piceas*, *Librocedrus*, and *Abies* amongst the Conifers, with the Austrian Pines and Cornish Elms, which form the magnificent avenue leading from the East Cowes entrance (fig. 125, page 575) to the mansion, are very conspicuous. Myrtles, too, as is well known, are numerous and fine, and to each there is attached some history, as also is there to some of the Cedars of Lebanon. Besides those already mentioned, *Rhododendrons*, *Paulownias*,

actually within the range of vision. On the terrace bedding is largely carried out, but nothing in the slightest degree out of the common is attempted. It is her Majesty's desire that no radical change shall be made, so that each year sees the Zonal Pelargoniums, the Lobelias, the Calceolarias, and others with seasonable regularity. To all intents and purposes this is the only flower garden on the place, though each of the several entrance lodges have flowers of a similar character planted about them by Mr. George Nobbs, the gardener.

Now we pass down from the terrace by the broad stone steps and along "the walk to the sea." It is a delightful road to travel by, for interesting trees are constantly seen, as well as charming views through the woods, in which wild flowers are at home. It is a considerable distance ere the shore is actually reached, but it is grand when once there. The rising ground on the mainland, about seven miles distant, acted as an admirable foil to the ship making its way to Southampton. How different this water was on the night of June 22nd from its appearance on a day in May will readily be imagined.

Passing along a paved promenade, against the walls of which the water was continuously lapping, we quickly arrive at one of the extremities of the estate, and through narrow paths and broad drives between the trees reach another point from that at which we entered. On our way across the grass by the cattle lazily browsing we note a handsome pavilion that was presented to her Majesty by Messrs. Sutton and Sons only a short time ago. The style in which it has been erected makes it quite an ornament to the landscape, the design being light and graceful with combined evidence of strength. Still pressing onward to our goal—the garden—we eventually found ourselves amid signs of activity in preparations for the bedding.

If the bedding arrangements to which Mr. Nobbs has to give his attention were confined to the terrace garden they would not be very arduous. Such, however, is by no means the case, for the flower gardens of Kent House, Victoria Cottage, which is in the occupation of Mr. George Woodford, by whom the three photographs were taken,

Albert Cottage, Osborne Cottage, Swiss Cottage, May Cottage, Arthur Cottage, the Queen's Almshouses, and the eight entrance lodges, each have to have the most careful attention, so that the bedding becomes an item that must be reckoned. For the purpose under notice, then, 60,000 plants are required yearly, and those that were about to be planted showed abundant evidence of excellent culture. Fortunately the number of frames for their reception is large, or the difficulty of raising and maintaining in good health such a quantity would be well-nigh impossible. They looked sturdy, strong and clean, stock of that



FIG. 115.—KITCHEN GARDEN TERRACE (page 554).

Catalpas, Arbutus, Hollies, and *Eucalyptus globulus* are abundant, not to mention the smaller flowering and foliage shrubs that are met with on every hand. With such surroundings as these, such family ties, can one wonder at the Queen's attachment to Osborne House?

Let us return for a moment to the illustration of the house to call attention to the terrace therein depicted, and shown also in fig. 127, p. 577. From a central position on this a magnificent view is commanded of the park, with occasional glimpses through vistas in the trees to the Solent, and beyond, when the atmosphere is clear, to the Hampshire coast, with Portsmouth on the right, and Southampton on the left, but neither

nature which everyone expects much from before the season is over. Neither does the work finish with the planting, for at each centre everything must be scrupulously neat and clean, so that it is no exaggeration to say the bedding as a whole entails much thought and labour to cope with it satisfactorily.

The gardens—and by this we mean the vegetable, fruit, and glass departments—are very limited in extent, though improvements are now being gradually made therein. The vegetables and hardy fruits are cultivated in one small enclosed garden; but limited as it is, really good work is done. The trees, mostly bush trained, were, at the time of this visit,

in capital condition—clean as regards insect pests and fungoid visitations, and built up of sound, healthy wood. Vegetables were scarce; but all the quarters were free from weeds, and preparations for their occupation were proceeding apace. Under glass the collection of plants is a very general one, comprising Orchids in small numbers, several handsome Ferns and Palms, with the several other kinds usually found in a collection of this nature. Mushrooms are splendidly grown in one of the outhouses, and the garden bears in its condition the impress of careful and painstaking attention to the details natural to it.

Brief as is this reference to Osborne House, it must suffice for the time being. Yet mention ought to be made of the surroundings that are, as it were, a part of the estate. Whippingham village and church, for example, are well worthy of more than the passing glance which alone can be given them. No place is more intimately associated with the private life of her Majesty and the late Prince Albert than St. Michaels, Whippingham, and all visitors to the "Garden Isle" ought to go there. In drawing to a conclusion we would acknowledge our indebtedness to Mr. G. Woodford for supplying the excellent photographs, and to Mr. G. Nobbs for his trouble in giving all the information in his power, and showing everything that he thought would be of interest.

BALMORAL CASTLE.

PROUD as we of the British race are of the record of her Majesty's wonderful reign, we look with especial pride upon the domestic virtues by which it is adorned. We feel that the Royal palaces are not only State residences but homes in the true sense of the word, made so by the character and example of our Sovereign herself. None of these reveals this more than Balmoral, where, surrounded by the magnificent scenery of Deeside, the Queen finds rest. Only a few days before her Majesty's arrival for a brief stay previous to undergoing the fatigues and trials of the Jubilee celebrations, it was the privilege of the writer to see this Highland home, of which an illustration is given on page 561.

The visit was an enjoyable one, made more so by the courtesy of Mr. James Forbes, who has recently been appointed her Majesty's Commissioner, and Mr. John M. Troup, who fills so ably the responsible position of gardener at Balmoral. Mrs. Troup also showed equal kindness, while Mrs. Musson, the housekeeper at the Castle, gave some time at a busy season to escort me through the public rooms.

The drive from Ballater on that bright but sharp morning in May was a delightful one. The air was pure and clear; the sun lit up the mountains, the river, and the trees. Lochnagar in the distance stands high above all with its snowy mantle; while the Birches, the glory of the Highland rivers and glens, were exquisite with their delicately beautiful and quivering leaves.

Those who might expect to find Balmoral gardens a copy in miniature of those at Windsor would find themselves disappointed. This is not desired. Balmoral is one of those places where elaborate gardening would appear incongruous. With the magnificent scenery around, Nature seems to claim supremacy over Art. The climate, moreover, places a limit to the practice of gardening, as if to compel acquiescence in this plan of Nature.

Dahlias will not bloom, even if planted out when some height; and Clematis Jackmanni has to be grown under glass. The thermometer fell to 49½° of frost two winters ago, and occasionally 10° of frost is experienced in June. Yet it is not to be supposed that the gardens are poor and unattractive. Not so; but the system is adapted to the desires of the Royal Family, and the work done is the highest of its

kind. Mr. Troup has had long experience of gardening in the north, and it is amply evident that, spurred by devotion to the Queen it is his privilege to serve, no one could carry out more skilfully the work entrusted to him.

The requirements of the household in the way of fruit and vegetables are principally met from Windsor; but of the former some Gooseberries, Raspberries, and Strawberries are grown. The Strawberries are Myatt's, Elton Pine, Aberdeen Favourite, and Latest of All. The last is being grown for the first time, but it is expected that it will prove satisfactory here. These Strawberries are for late use, and are often obtained in perfection until well into September. The glass houses are six in number, none very large, and mostly three-quarter spans, facing the south. Such houses are more suitable for the severity of the climate than any other, and they are filled with a splendidly cultivated stock of the plants most required in and for the Castle. Detailed mention of these plants is not essential, but a few features must be noticed. As before mentioned, Clematis Jackmanni is grown under glass. Satisfactory Roses are Gloire de Dijon, The Bride, Niphetos, and Isabella Sprunt, the last being prized on account of the beauty of its buds. Maréchal Niel does not succeed, so is not grown. The fine old Tree Carnation, the blush Souvenir de la Malmaison, proves very useful, and none is found more valuable than Germania. The Margaret Carnations are also grown for autumn flowers. A healthy stock of Chrysanthemums was in one of the houses. The late flowering kinds are not required; but about 200 Madame C. Desgranges are grown, with from fifty to seventy other early varieties. Piercy's Seedling is valued all the season, and was in flower on the occasion of my visit.

The principal flower garden is situated in front of the houses, and although not of great extent, must be very beautiful when the beds, which are cut in the grass, are in full bloom. The situation is a picturesque one at the base of the beautifully wooded Craig Gowan. There are no walls or high hedges to cut the garden off from the surrounding grounds, and the eye travels with pleasure from the flowers to the trees, the hills, and the verdant turf. The garden is, I understand, much the same as in the time of H.R.H. the Prince Consort. Balmoral was his own property, and one can see all around it evidences of the lamented Prince's refined tastes and love of Nature in its highest aspects.

The national flower of England—the Rose—is largely grown, and is represented by various sections, both old and new being seen in the beds. From what one knows of Rose growing in the north, it was not surprising to learn that the Teas are more satisfactory than the Hybrid Perpetuals. Many of both were seen, among others being Princess Beatrice, Belle Lyonnaise, Sénateur Vaisse, W. A. Richardson, Buret, Safrano, the invaluable Isabella Sprunt, La France, Grace Darling, and Boule de Neige. There was also a bed of Old Summer Roses and Scotch Briars edged with old-fashioned Polyanthus. Between the Roses annuals are grown. Tulips were also well represented, Victoria, Duke of York, Artis, and La Candeur being among the earlier varieties. Parrot Tulips mingled with mixed late varieties were in another bed edged with Cerastium. The last is largely used, together with Arabises alpina and lucida, Silene pendula, Myosotis, Auriculas, and Violas, while herbaceous plants receive a large measure of attention. There is a dark form of Scilla italica here, and a fine display will be made in autumn by long lines of the double purple Colchicum autumnale. The old double Pæonia officinalis seems rather a favourite, if one may judge from the plants grown.

The shrubs and flowering trees about Balmoral are Lilacs, Honey-suckle, Flowering Currants, Mahonias, and Rhododendrons. Lilacs are



FIG. 116—GRAPES DUKE OF BUCCLEUCH AND MADRESFIELD COURT (page 554).

great favourites, and the common Honeysuckle is to be found almost everywhere. It covers an arched trellis over a door leading from the Castle into a series of beds on the south side; it is being trained up the lamp pillars in the entrance avenues, and to show how much this simple and fragrant flower is cared for it may be mentioned that, associated with Ivy and Cotoneaster, it climbs up the pedestals of the statues of her Majesty and H.R.H. the Prince Consort.

The flower beds at the Castle are not extensive. On the south front are mosaic beds of coloured stones, a style occasionally seen, but more common when Balmoral first became a Royal residence. On the west front facing the Royal apartments there is another series planted with herbaceous and spring bedding plants, *Viola Countess of Kintore* seemingly being a favourite at Balmoral, summer and autumn-blooming plants following in due course. There is a magnificent view from this side looking up the Dee towards Braemar, which we cannot attempt to picture.

On the north side beneath a terrace is another series of small beds occupied in summer with Pentstemons, Antirrhinums, Asters, Stocks, pegged-down Clarkias, and similar flowers. The front of the terrace is covered with Ivy, with Honeysuckle on the pillars. A row of fine Irish Yews was destroyed here by the memorable winter of 1894-5. A short walk led to a beautiful chalet, made of wood grown on the Balmoral estate, and exhibited at the Edinburgh Forestry Exhibition. It is admirably finished, the polished surfaces of the interior showing the beauty of some of our native timber. Near here is a bed of Provence Roses, and in front is a sloping bank of Mahonias. A fine view of the river Dee is obtained from this point.

The garden cottage, in which her Majesty breakfasts and conducts her correspondence, was also seen. It is a pretty little building, which, later still, will be even more attractive when the Honeysuckle, *Tropaeolum speciosum*, and the Canary Creeper climb over its walls; and an interesting feature is the number of memorial trees planted in the grounds.

It would not do to leave this Royal Highland home without ascending at least one of the hills to view Balmoral from above, and to admire the surrounding scenery. Mr. Troup, with unwearied kindness, suggested the ascent of Craig Gowan, on which is the Cairn, in commemoration of the marriage of H.R.H. the late Duke of Albany—a married life which, alas! was cut all too short. A little higher is the flagstaff on which the flag is hoisted on occasions of rejoicing, and near which the bonfires blaze. The hill is largely covered with Birch, intermingled with other trees, with an undergrowth of Juniper, Blaeberry, Whortleberry, and Heather. From the summit the view is indeed magnificent. Balmoral Castle nestles below, surrounded by its trees, its lovely grounds, and gardens. Through the valley the Dee winds along, and on both sides rise lofty mountains. I looked longingly at the Cairn on the summit of Craig Lowrigan, erected to the memory of the Prince Consort; and not to be forgotten is the beauty of the glade at the base of Craig Gowan, past the Queen's Well, with its stream of cool and limpid water. We had left to the last a look at the statues of her Majesty and Prince Albert. It was a fitting conclusion to a visit not soon to be forgotten, to look up to those representations of two noble lives, the one happily still with us, to continue long, we hope, her beneficent reign; the other cut off in early manhood, but not before the nation could realise how much it had lost by his death. And so we turned and came away. A memorable day had come and gone; a day which had brought with it much pleasure, and had given subject for deep thought.

Full of beauty as is Balmoral, magnificent as are its surroundings, we feel that it gains lustre from the thought of those whose home it was and is. We think of our Queen, to whom it is so dear, bearing so patiently, so bravely, and so well the burden of the British Crown, ever seeking to do her duty as Monarch, ever remembering the sorrows, the joys, and the triumphs of her people.

A visit to her Highland home can only intensify one's loyalty and admiration, so clearly can one see and learn that the Queen's messages to her rejoicing or sorrowing people are from the heart. Mingled with all these thoughts of her Majesty's goodness come those of him whose loss she has ever mourned. To that Prince, Balmoral, as it was and is, is due. To use her Majesty's words, it is "his own work, own building, own laying out. . . . His great taste and the impress of his dear hand have been stamped everywhere."

As Balmoral was left behind, it was with the earnest hope that our gracious Monarch may long be spared to draw strength and comfort from her beautiful Highland home and the everlasting hills, the symbols of the Eternal, which rise around.—S. ARNOTT.

Horticulture During the Queen's Reign.

SIXTY YEARS' REMINISCENCES.

WHEN I was asked to write something about the progress of horticulture during the Queen's reign, I was somewhat startled by the magnitude of the task proposed; to do it fully would have required the reading up of a great mass of literature, and would have demanded not the writing of a paper but of a volume. Although the honour which has been put upon me in asking me to write this paper is one which I duly appreciate, I must at the same time say that I have no intention of treating it as just suggested. When I come to ask myself on what grounds I have been requested to undertake this work the only answers I can find are that during those years I have been closely associated with horticulture, and that my horticultural life began some years before Her Majesty's accession to the Throne. This advantage is one that my younger brethren will not envy me, but experience is one of those good things which we old men can claim; and as I have already said in the pages of the Journal, I was in the full strength of early manhood when I saw at Milan the announcement of the death of William IV., and that his niece, our present Gracious Queen, was to succeed him.

OLD TIMES AND OLD FRIENDS.

My paper will then be rather one of personal reminiscences than of detailed historical statements. I am not one of those who are always exclaiming that the old times were better than the present, and in nothing is this less true than in horticulture. Think of the time, my friends, when there were no Japanese Chrysanthemums, no tuberous Begonias, no Hybrid Perpetual or Tea Roses worthy of mention, no *Lilium auratum*; when Orchid growers were scarce and the species cultivated few in number; and it will be then seen how very different our gardens are now to what they were in those days, and yet there is much that one can recall with pleasure, and scenes occur to one it will be impossible to equal in these days.

Especially is the recollection strong of two exhibitions which I attended in the early days of Her Majesty's reign. One of these was the great summer show in the Royal Horticultural Society's Gardens at Chiswick. This was then as much one of the days of the London season as the opening day of the Royal Academy. The whole way from the West End to Chiswick was thronged with the grand equipages of the upper ten, while the brilliancy of the toilettes of the ladies showed it to be as important to them as the day at Longchamps is to the Parisian belles. The exhibition of flowers was also in some respects remarkable. Ericas and hardwooded plants were then much more in favour than they are now, and I well remember the splendid specimens of various kinds which used to be shown by Mrs. Lawrence, who was an enthusiastic horticulturist. The day was memorable to me also, for on going across the lawn I picked up a well filled purse, and on inquiry soon found an owner, Mr. John Edwards, who was then one of the leading growers of Tulips, Auriculas, and other florist flowers in the Metropolis, which led to much pleasant intercourse with that most ardent florist. The other exhibition was a scene of a very different character, and took place at the Horns, Kennington, lately demolished; it was an exhibition of Auriculas and Polyanthus, and very keenly were the prizes (which were insignificant compared with those which are offered now) contested; but I think there was a real genuine love of the flowers manifested by all the exhibitors.

Nor in other respects were there signs wanting that there was as much enthusiasm amongst the flower loving community then as now. It is true that the extraordinary prices which have been given for Orchids in these latter days could not be paralleled then, but I remember going to Walworth to see the magnificent beds of Tulips grown by Mr. Groom, many of the bulbs in it being valued at £50 and upwards. I remember also seeing at Catleugh's shop in Chelsea, carriages standing, whose fair occupants were carrying off plants of the new *Pelargoniums* raised by Mr. Garth, who lived near Farnham, Surrey, and Mr. Foster, of Clewer Manor, for which they had paid 5 guineas a plant; and well do I also recollect the delight with which I received shortly afterwards a cutting of Garth's Joan of Arc, very brilliant in colour, but of such a form as a few years saw it quietly displaced by others. Then I call to mind beds of Persian *Ranunculus*, such as I have never since seen, so brilliant and varied were the colours, and so exquisite the form.

It may well be asked, What was the condition of our gardens at that time? The borders were filled with miscellaneous collections of plants of what people call now old-fashioned flowers. There was always plenty of colour and of perfume, although the plants were very much muddled together; while the Roses, which were scattered amongst them, were Moss and China, and others which go now under the name of summer flowering Roses; and while there are many nurseries which have risen up since those days, one must not forget that there were many in and around London, the memory of which is cherished by the few who remain of that generation. There were Rolliesson of Tooting, Glendinning of Chiswick, Jackson of Kingston, E. G. Henderson of Pine Apple Place, for whose representatives of the present day we search in vain; and there were others whose descendants still remain with us, and whose names are as household words amongst us—Veitch of Chelsea, Fraser of Lee Bridge, Low of Clapton, Cutbush of Highgate; while looking a little further afield one recollects the Rivers of Sawbridgeworth, the Pauls of Cheshunt and Waltham Cross, Turner of Slough, Smith of Worcester, Lucombe, Pince & Co. of Exeter, and Waterer of Bagshot. In all these cases the sixty years of Her Majesty's reign have witnessed a marvellous development.

With many of those good men and true whose names are first mentioned I had in those bygone days much pleasant intercourse, for I had a very omnivorous appetite, and whether the plants grown were the aristocratic Orchid or the plebeian Pansy, they never failed to interest me, and yet to many of the present generation the names of those bygone heroes of the gardening world have no meaning whatever. So it is in everything; and no matter in what a man has been interested—science, art, or literature, the past brings up the most faint shadows, which he finds it difficult to retain. It will thus be seen that my view of the state of horticulture in 1837 and thereabouts was not such as to leave too much room for boasting on the part of the present generation, while it was such as to leave room for the ample development in every department which has since taken place.

CHANGES IN GARDENS.

Having thus prepared the way to consider what those developments have been, and to what causes they are attributable, let me then take as the foundation of all, the conditions of gardens themselves now and then. I have already stated what gardens were in those days, and it is interesting to mark how fashion has moulded this as other things. Who cannot recollect the utter subversion of the gardens of old times by what is known as the bedding out system? Many an old garden had been metamorphosed by this new-fangled notion; old plants that had long by their beauty or fragrance adorned the borders were ruthlessly uprooted, and every available resource was utilised for the purpose of raising the thousands of plants which were required for this new system; and the value of a plant came to be reckoned by its capability of being used or not for this purpose. Our gardens became a mass of glaring colours in which the scarlet "Geranium," the yellow *Calceolaria*, and the blue *Lobelia* bore a conspicuous part; and long dissertations were given upon the value of some new plants which might be made available. At first these were restricted to beds; then came the rage for ribbon borders, in which long rows of red and yellow were combined with foliage plants, such as *Perilla* and *Iresine*, to be used as contrasts.

Then there came a further development of this—what was called the carpet system, in which *Alternantheras* and similar plants were used, together with various coloured stones and even glass for the walks. These beds had to be kept constantly clipped, and where the garden was any way extensive five or six men might be seen, as I have seen them, on their knees clipping away with scissors, so that you might have imagined yourself to have been in Truefitt's, while as far as beauty and fragrance were concerned you might as well have thrown a piece of Turkey carpet upon the ground. The worst feature of the whole thing was this—that it invaded our cottage gardens, and many of the old-fashioned flowers were displaced by some of these new colours, and instead of these gardens being filled with plants which could very well take care of themselves, tender things had to be grown for which some kind of protection had to be found during the winter.

There was one way, however, in which this system was found acceptable, and where it is not even now out of place—I mean in public parks and gardens. Here a mass of colour is always acceptable to the populace, and the same people do not, as in private gardens, look at it every day. Connected with this was what was called sub-tropical gardening, in which really tender plants were utilised for the same purpose; but this was almost exclusively confined to public gardens, and was extensively employed in the parks of Paris, from whence the taste came to our own country. We are a people that deal much in extremes, and when we have passed all reasonable limits there comes the revulsion of feeling and the reversion of practice.

This change of taste has completely altered the appearance of all private gardens. In places where there is room for it, various styles of gardening are still carried out; but in those of small extent, such as are by far the greater proportion of our English gardens, the herbaceous system has very nearly ousted the former glaring style; and it is curious to notice how the law of demand and supply has come into force to meet the new departure. It was not, of course, at first popular—indeed, I knew of one case where a garden had been long filled with herbaceous plants of various kinds; it passed into other hands, and these were all assiduously rooted out, to the great grief of the former occupier, who used to tell with a chuckle how this very same person after a little while was known to grope about in the rubbish heap, to try and rescue some of the plants which he had discarded, for he saw how wrong he had been, and was anxious to repair the mischief.

In consequence of this change all over the country establishments started into

existence, whose main and sometimes sole object was the cultivation of hardy herbaceous plants. The great York nursery of Messrs. Backhouse & Son had long been celebrated for these things, and I think their piece of rockwork is without exception the most perfect and successful example of the kind in the kingdom, and among my pleasant reminiscences of gardens that I have seen this holds a foremost place. Other establishments, however, soon claimed attention. Mr. Ware of Tottenham, Messrs. Paul & Son of Cheshunt, Mr. Barr of Ditton, Mr. Pritchard of Christchurch, Mr. Smith of Newry, the Guildford Hardy Plant Nursery, Mr. Wood of Kirkstall, Dicksons of Chester, Smiths of Worcester, are amongst those who have catered to the public taste in this respect. But of a truth one can hardly now go into a nursery of any extent without finding a section devoted to herbaceous plants.

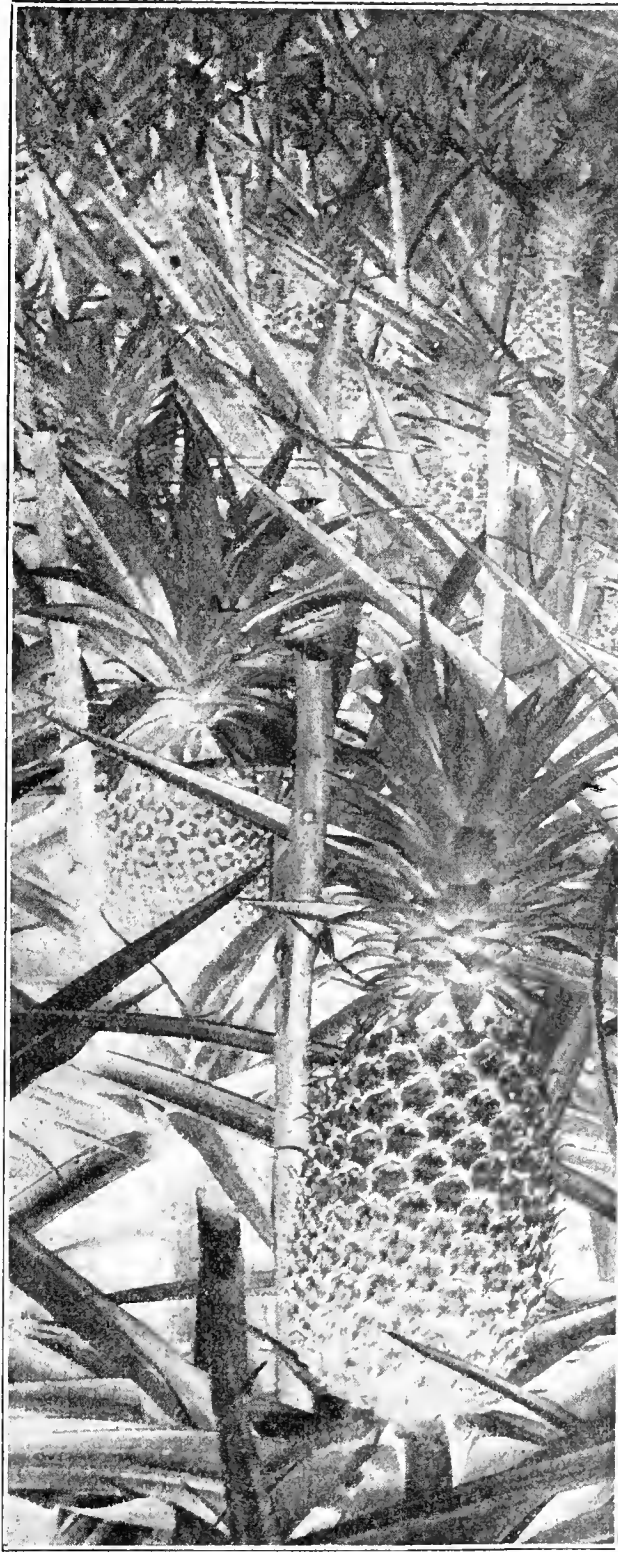


FIG. 117.—PINES SMOOTH CAYENNE (page 555).

Along with the cultivation of these, hardy and half-hardy annuals have come into great request, and I notice that there is a tendency to grow the simpler formed flowers in preference to the very double ones, such as the Aster and the Marigold. Two double flowers, however, still maintain their place—the Rose and the Dahlia—though in both cases single forms have been much sought after, and were at one time very popular. There is another flower which was at one time considered the almost exclusive property of the florist, which has, however, become as popular as either of the preceding—I mean the Carnation; its delicious perfume and its brilliant colour soon made for it a place in all well-ordered gardens, and now what are called border varieties are eagerly sought after. Great impetus has been given to their culture by the establishment of the southern branch of the National Carnation and Picotee Society (although that was not the purpose for which it was established), and by the liberal action of Mr. Martin R. Smith, who is a most enthusiastic cultivator, and who distributes every year to all its members a packet of his carefully hybridised seed. I can personally testify to the excellence and variety of the flowers thus obtained.

CHANGES UNDER GLASS.

So far, then, as regards the progress of gardening in its out-of-door aspect; but what shall we say to the greenhouse and stove portions? Here the change has been as great as in the other case. Orchid houses! Why, one can recollect the time when these were few and far between; but now they are everywhere to be seen, and in the vicinity of some of our most smoky towns—notably Manchester—the plants have found many enthusiastic and successful cultivators. Out-of-door gardening is pursued in such districts under great difficulties, and hence the culture of plants under glass has seemed more congenial and more suited to the surroundings, and in places where only two or three were grown large collections are now to be found. One curious change has taken place in the cultivation of greenhouse plants—that is, the unpopularity of the Camellia: The flowers are beautiful in form and in the purity of their colouring; but many people think them too stiff, while they are quite devoid of perfume. Ladies gave them an unkind blow when they refused to use them for personal decoration, and preferred the less formal and sweetly scented Rose.

We find now in our greenhouses a more varied collection of miscellaneous plants of small size. This is occasioned by the taste for plants for house decoration, and especially for the dinner table, which shows the happy change which has taken place in dinner arrangements; so that instead of the heavy and strong smelling dishes which used to be placed on our tables, and under which they groaned, we have the utmost skill and intelligence used in decorating them with flowers in various ways. Table decoration has also gone through various changes. Many can remember when a sort of young forest of Palms, Ferns, &c., completely enveloped the guests, and tables were specially made to insert the pots in which these plants were grown. We rarely now see the huge plants which were at one time considered the best witness to the gardener's skill. One case I call to mind in which the owner had come into a large and unexpected windfall, and spent thousands of pounds in erecting a magnificent range of houses, and these were entirely filled

with large overgrown specimen Ferns and flowering plants, neither the owner or his family being able to gather any of them for fear they should spoil the symmetry of the plants.

One might say a good deal on the progress which has been made in the culture of Orchids. No such magnificent collections as those of Sir Trevor Lawrence or Baron Schröder were to be seen in the earlier days of her Majesty's reign. The fabulous prices which have been given for Orchids sufficiently attest the enthusiasm, and I may add the deep pockets, of some of our Orchid fanciers of the present day. Then, too, it has been found many of them do not require the excessive heat which they were supposed to need, and the term cool-house Orchids shows how this change has operated; and the enormously enlarged establishments of Messrs. Veitch, Sander, Bull, Williams & Son in the neighbourhood of London, and many others in the provinces, clearly indicate how great is the demand.

MARKET GARDENING

But perhaps in no department of gardening has the change been greater than that of market gardening, especially as regards the cultivation of fruits and vegetables under glass. Let anyone go through the market gardens in the neighbourhood of London, east, west, north, and south—in Essex, Middlesex, Surrey, Herts, and visit such districts as Broxbourne, Chesham, Ham, Hampton, Finchley, Swanley, Dartford, and if he has not before seen them they will indeed be a revelation. When you can go into one house and see 7 tons of the most perfectly finished Grapes, and when you know that this

house is but a sample of others in the same grounds where there are 20 acres of glass; or let him go to another from whence the proprietor has sent to Covent Garden 100 tons of Grapes in the season; or let him talk to Mr. George Monro, the eminent salesman, who will tell him that in the four days preceding Christmas, 1896, 4 tons of Grapes passed through his hands, he will be able to appreciate the wonderful progress that has been made in this department.

Connected with this one cannot but notice the remarkable development that has taken place in the culture of the Tomato. One can see acres of houses 100 to 200 feet long filled with this wholesome and agreeable vegetable or fruit (whichever we call it). I can remember the time when it was considered poisonous, and on about the same level as the berries of the Potato. We used in bygone days to grow a plant of it in our greenhouses on account of its ornamental fruit, and it then went under the name of Love Apple. At first Covent Garden used to be supplied from abroad, and even now in the early part of the season France, Spain, and the Canary Islands supply us with them; but as in the case of fruit, as soon as we can get our home-grown plants into bearing the foreigner is "obliged to take a back seat;" and as there are no Peaches, Nectarines, or Grapes equal to those in our hothouses, so all Tomatoes are inferior to those with which our market gardeners supply the London and other markets. Those amateurs who have small greenhouses have got into a way of growing Tomatoes for their own use, and they are always a welcome addition to the dinner table. As one who can remember the suspicion with which they

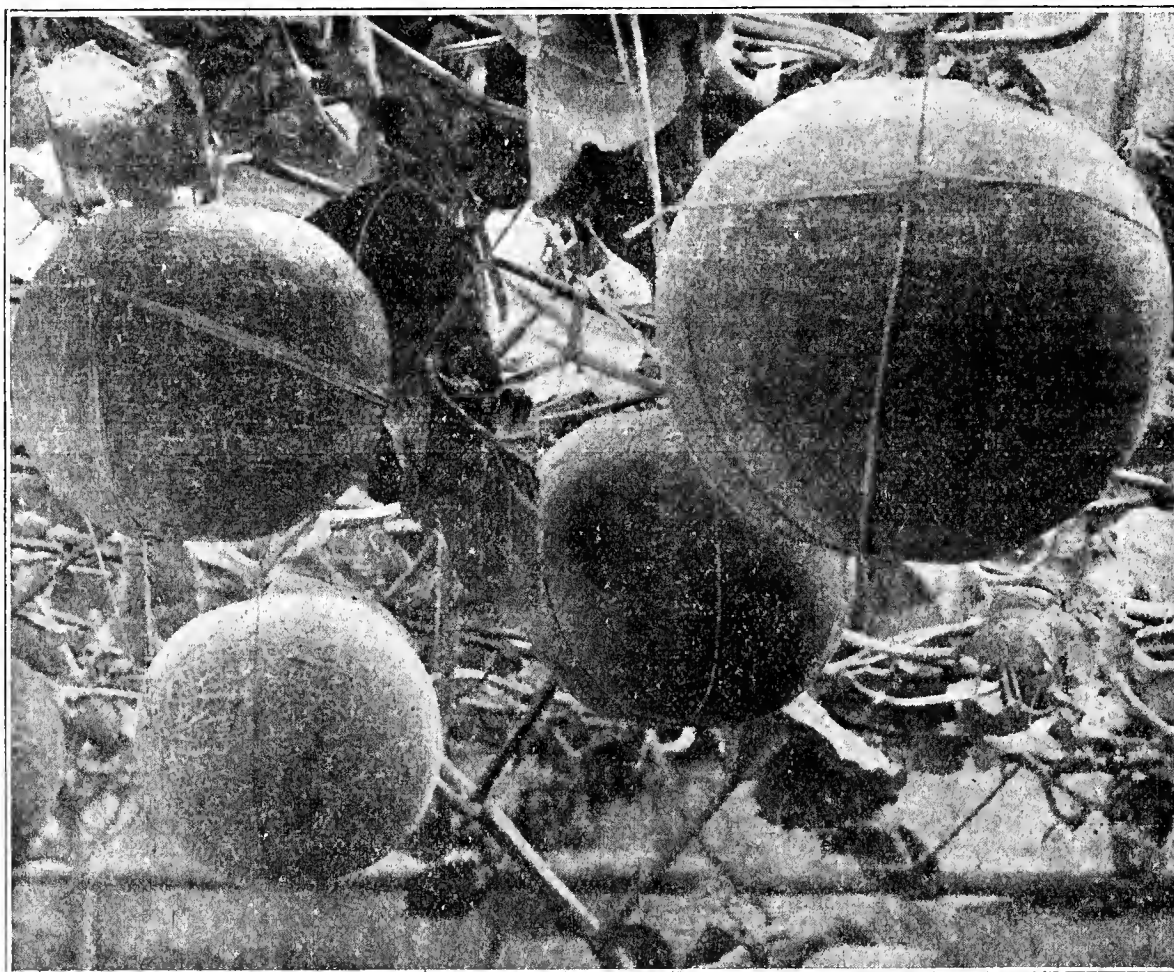


FIG. 118.—MELON FROGMORE ORANGE (page 555).

were once regarded I can feel the greatness of the change, and decidedly mark this as another sign of progress.

As we pass away from the culture under glass to that of hardy fruits in the open, progress seems to be equally great. If any of your readers can remember, for instance, what Strawberry culture was in the early days of her Majesty's reign, and compare it with what it is now, they will not dissent from this statement. In private gardens the Strawberry beds were made up of inferior kinds, for all the good varieties now in cultivation were unknown then. There were no Paxtons, Dr. Hoggs, Presidents, British Queens, Napiers, or, indeed, any of the fine varieties on which we now depend. The beds were oftentimes five, six, or seven years old, the runners were allowed to root themselves all over the bed, and after fruiting all the tops were cut off; but now in the best cultivated gardens they are almost regarded as annuals, the beds being renewed every year. Where this is considered too troublesome they are at most two or three years old, the shoots of the year being cut off, and consequently not allowed to root, and the plant kept close at home. But it is when we come to their cultivation for market that we see the immense change that has taken place. In Kent, around Swanley, the Crays, and other places in the neighbourhood of Southampton, and, in fact, wherever soil and situation are suitable, hundreds of acres are grown of this delicious fruit, for which there seems an ever-increasing demand. That this demand is of large dimensions may be gathered from the fact that in a good Strawberry season 11 tons have been sent up by one grower in one day from Swanley station, and that Strawberry trains are run to the great manufacturing towns of the North daily during the season.

It need hardly be said that this increased growth and large produce are accompanied by high-class cultivation, while the production of new sorts both early and late have greatly extended the duration of the season; especially in early Strawberries has this been the case, and it may well be anticipated that later varieties still further prolonging the season will reward the skill and intelligence of our hybridisers. Of course, cultivation like this is good for all concerned; it employs a large amount of labour, for machinery is unavailable here, and in the picking season the fields present an animated appearance owing to the number of women employed in gathering the fruit. We must remember that this is a culture in which we are not very likely to be interfered with by foreign growers.

BUSH AND ORCHARD FRUITS.

Again, what progress has been made in the culture of the Black Currant. It may not perhaps do to examine too closely as to what becomes of all the Black Currants that are grown; they all, however, seem to find a ready market, and are very widely cultivated. One of our eminent statesmen suggested the growth of these and other small fruits for the purpose of jam making, as a remedy for agricultural distress. Without going quite so far as that, one may say that it forms a good help to the farmer where there is easy access to railway transit. I have known, for instance, an acre to bring in £70 or £80, and this not accompanied with much expenditure of labour; and persons who formerly scoffed at the idea of growing such things are now eager to take up this industry.

The most important, however, in the hardy fruits which we cultivate are the Apple, the Plum, and the Pear; and here again we must notice the great improvement that has taken place both in the production of newer varieties and in the methods of cultivation. Although there can be no doubt that there has been less progress in these fruits than in many others, yet at the time of which I write we must remember that some of our most valued kinds were not in existence. There were no Cox's Orange Pippins and other choice Apple, and no Doyenné du Comice and other delicious Pear; still, notwithstanding the numerous varieties of these fruits which have been introduced of late years, there are many long-established favourites which have not been ousted from our gardens.

The introduction of the system of growing bush and pyramid trees, and more especially the cordon system of training introduced from

France, has to a great extent revolutionised our gardens as far as the culture of these fruits is concerned, and to see this carried out in its perfection a visit to Barham Court, near Maidstone, would show how very great is the progress made in this department of fruit culture.

It cannot, however, be said that generally speaking our orchards show any decided marks of improvement. Much attention has been drawn to this subject of late, and a visit to any of our orchards will fully confirm the statements which have been put forward. No attention was given either to the sorts cultivated or to the trees themselves. They were mostly October ripening varieties, which would not keep, consequently there was a glut about that time if the fruit crop was a large one, and then at the time when Apples would have fetched a good price we were dependant on importations from all parts of the world. There is, however, apparently a change for the better. Some of these old orchards are being remodelled, and valuable kinds are replacing the old and comparatively worthless sorts, and wherever one goes amongst the

gardens of amateurs we find that carefully selected varieties are grown and cultivated with great care.

VEGETABLES

With regard to vegetables, in some respects there has been a great improvement. The large seed establishments which have sprung up all over the country vie with one another in catering for their patrons, and supply what was in former days a difficult matter—reliable seeds; but in one respect I do not think we can congratulate ourselves. Exhibitions have encouraged people to grow large produce, and it has been the aim of seed growers to obtain such varieties the superior size of which might recommend them to the judges; but this size is obtained in many instances by deterioration in flavour. Thus we have Peas with enormous pods, but with the delicate flavour sacrificed for size; Onions, beautiful in shape and large, but with a great deal of the Spanish and Tripoli character in them, so that their pungency is reduced to a minimum; while Brussels Sprouts, whose chief merit was their delicate flavour, have been so increased in size that this has given place to coarseness. It is the same with most other vegetables, and while no doubt it evidences the great progress which has been made in the direction which hybridisers have marked out for themselves, it seems to



FIG. 119.—STRAWBERRY LA GROSSE SUCRÉE (page 556).

me to be a wrong direction. Still it is impossible to deny that on whatever side we look, whether we consider flowers, fruits, or vegetables, the last sixty years, and especially the latter half of them, have marked the most decided progress.

As to the causes which have contributed to this progress, I think we must lay down in the first place that horticulture shares in the general advance which has marked the latter half of this century; mainly owing to the increased prosperity of all classes, and their increase of wealth and consequent increased power of spending. Of course I shall

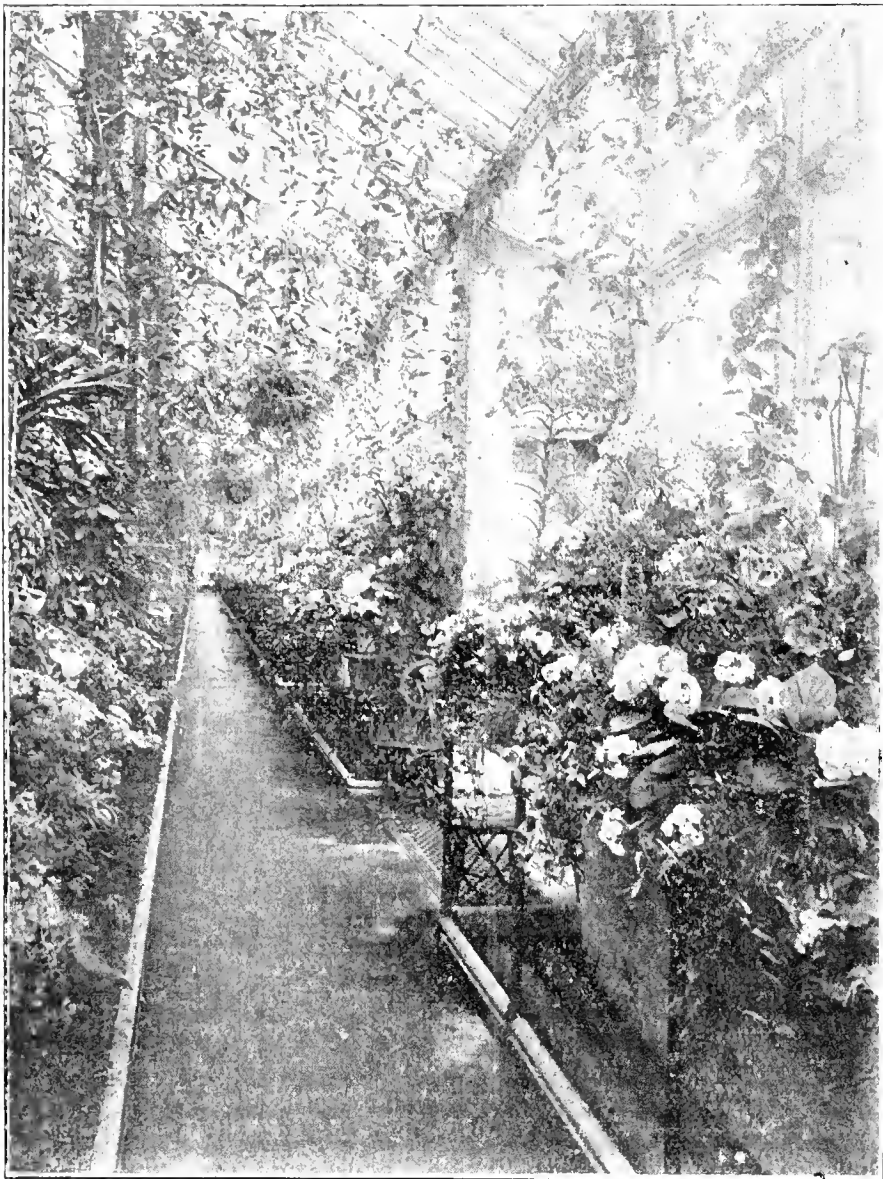


FIG. 120.—CONSERVATORY, FROGMORE (page 556).

be met by the objection that one of our chief industries, agriculture, has passed and is passing through a period of great depression; I am aware of this, but it was not the case until within the last few years, and we must bear in mind the close relationship between it and horticulture, and if there be progress in the one it must act upon the other. In fact, do not all parts of the country bear witness to the statements which have been made that market gardening is entering largely into the operations of the farmer, and that consequently improvements in horticulture must work for his good? and when the revenue of the country has exceeded £100,000,000 it will be idle to deny the fact of increased prosperity.

LOCOMOTION.

All branches of art and science have shown a progress that exceeds all that has gone before them, while in everything that tends to the material comfort of the people this gratifying change must be noticed. The large sums that are being expended in every direction have greatly helped forward the cause of horticulture. A very important factor in this development has been the increased facility of locomotion; if it had not been for this it would have been impossible that exhibitions could have been held as they have been, and that the increased demand for the productions of the horticulturists, especially in our large centres of population, could have been met. See how the Daffodils and other flowers of the Scilly Isles are brought by tons all fresh into the London markets, and to those of our great northern towns; and see, also, as I have already said, how the fruits which have been gathered in early morning are hurried off and brought temptingly fresh for their

consumers. See, too, how societies dare to invite competition from persons living a couple of hundred miles from where products have to be shown, and then think of what many others have experienced in former days when the facilities of transit were more difficult.

Many of us can remember the labour, exhaustion, and trouble in those long-past days. We still grumble that the railway companies do not treat us as well as they ought to do. There are still some annoyances connected with them, but I think it is not unlikely that these may be remedied, and further facilities given for getting the productions of the gardener to an early market. There is little doubt, I think, that the careless way in which fruit especially has been gathered and packed for market has been one great hindrance to the realisation of the profit which growers have a right to expect. I believe, however, that of late the efforts of Mr. George Monro and others, who have pointed out how this plays into the hands of the foreigner, is leading to considerable improvement, while some of the railway companies have been giving suggestions which, if carried out, must tend to the same end.

LITERATURE.

Another very potent agent in the progress that has been made in all departments of gardening may, I think, be fairly said to be the great increase in and improvement of our gardening literature. As far as I can recollect there was but one weekly journal previous to the establishment of the "Gardeners' Chronicle," under the editorship of Dr. Lindley. From the well-known position of its Editor it assumed the rôle that it has maintained all through its existence, as the exponent of the scientific aspects of gardening, and its pages have ever been open to the most distinguished botanists, both home and foreign. The *Journal of Horticulture* can now claim nearly fifty years of life, and shows no sign of decrepitude or decay. Originating in the provinces, it after a while flitted to London, where, under the wise and firm hands of its two Editors, Mr. Johnson and Dr. Hogg, it became one of the most popular of the weekly journals. The "Gardeners' Magazine," a name which I believe was originally associated with Mr. George Glenny, was for many years edited by the genial and witty Shirley Hibberd. Then came the announcement of a fourth, which took up a distinct line of its own, I mean "The Garden." It was founded by Mr. William Robinson, and from the first waged war against the extravagances to which the bedding-out system had been carried, and was the strong upholder of the cultivation of those herbaceous plants which now form so great a feature in our gardens. Its coloured plates, which are admirably executed, have no doubt been a great cause of its popularity. One, perhaps, might have thought that these papers would have been sufficient; but no, from some of the offices there have issued a sort of overflow paper, published at 1d., and thus teaching on all kinds of subjects connected with gardening every week, reaches all classes of the community, and adds, I believe, largely to the progress gardening has made.

In connection with this onward movement one may allude to the freedom with which all gardening subjects are treated in these papers. Time was, as some of us can recollect, when if a gardener was asked the cause of his success in some particular culture it was very difficult to get anything but an evasive reply from him; but it is not so now. If success attends any cultivator he is the first to make it known as widely as he can, while others are sure to notice how he succeeded. Thus the encouragement of progress becomes much more widened.

THE RESULTS OF CHEAP GLASS.

Another cause for this progress, but of a very different character, has been the taking off the duty on glass. I am quite sure that when Sir Robert Peel effected this fiscal change he had no idea of the extent to which the community would be benefited by it. The rich man has built his large conservatories and greenhouses without having the bugbear of duty to be paid before him; the market gardener has been able to cover his acres upon acres with forcing houses; the amateur hardly considers his home would be complete without a greenhouse of some kind, and if one goes through the districts round London and other large towns where artisans most congregate he is surprised at the number of small greenhouses which are attached to their humble dwellings, and in which their owners take as much pride as the Lords of Chatsworth and Trentham do in their large establishments. Tending to the same end, and probably from the same cause, has been the great reduction in the price of glass itself; it is not one-half what it used to be, and thus a man of small means has placed before him opportunities which even his richer neighbour could not enjoy in times past. In

smoky neighbourhoods this is more especially a great boon. The Rose, for instance, will not endure smoke, but I have seen many a good flower come from an artisan's greenhouse which he could not have grown in the open air, and but for these advantages those grand establishments which we see all around us for the growth of flowers and fruit would probably never have been contemplated.

THE INFLUENCE OF SOCIETIES AND EXHIBITIONS.

I know that there are many people who disparage exhibitions and the efforts that have been made to promote them, and although nothing that we have to do is free from objections, yet I am persuaded that these objections are valueless, and with regard to societies we know that in our complicated civilised system societies must be formed for all sorts of things. Foremost amongst those which have helped forward

The admirably planned and beautiful gardens of the Royal Botanical Society in Regent's Park were the scene of some of the finest exhibitions held in or about London, and no doubt greatly contributed to the increased popularity of flowers. When Paxton's gigantic palace of glass was erected on Sydenham Hill, and surrounded by beautiful gardens, another impetus was given to the promotion of horticulture; it is an ideal place for a flower show, for it affords that which our variable climate so much needs—shelter and protection from bad weather, beside other attractions to those who frequent the shows held there.

As far as the provinces are concerned, I think we may say that wherever societies exist their influence on the neighbourhood is easily seen, and yet the true lover of flowers must regret that in some of our



FIG. 121.—GARDENIAS IN ORCHID HOUSE (page 556).

this good cause is appropriately the Royal Horticultural Society. During the last sixty years it has had a curiously chequered career. We can remember the feeble gatherings both in Regent Street and Charing Cross. We can recollect how it shared in the grand plans that the late Prince Consort had formed with regard to South Kensington; we can call to mind how all these hopes were disappointed, and what a failure South Kensington was in a horticultural point of view; and we can also remember the manner in which the Committees were shunted about from one place to another, and how at last South Kensington became a byword and a reproach so far as horticulture was concerned. Still the Society held on, and then brighter days dawned, and although its location is by no means an ideal one, yet no one can doubt that the fortnightly meetings held at the Drill Hall have been of late years a very powerful incentive to everything connected with gardening.

most successful exhibitions other things which are hardly legitimate adjuncts to the flower show are brought in to make them a success. But then it has also to be remembered that but for those adjuncts many thousands of persons would not have been brought within the sphere of influence of flowers and become, as so many have, ardent cultivators. Changed habits have thus been brought about which have resulted in brighter homes and happier lives. Still, wherever these converts become true lovers of flowers extraneous attractions at shows lose to them their charms.

No one can review the effect of exhibitions on the progress of horticulture and ignore two which unquestionably had very great influence. I refer to the one held in 1866 at South Kensington, and the more frequent ones held at Manchester under the auspices of the Manchester

Botanical Society, and known as the Great Whitsuntide Show. The former was international, and exhibitors from France and Belgium alike competed. The whole was arranged under the superintendence of Mr. Gibson, the accomplished landscape gardener of Battersea Park, and a grander show it would be impossible to see. It was, however, within an ace of being a fiasco. The weather for the days on which the show was held was most unfavourable; but with daring courage the promoters determined to keep it open longer. Fine weather succeeded, crowds of visitors thronged to see it, and the whole affair was a brilliant success.

Never shall I forget the astonishment manifested by some of the foreign Rose growers when they saw the magnificent pots of Roses

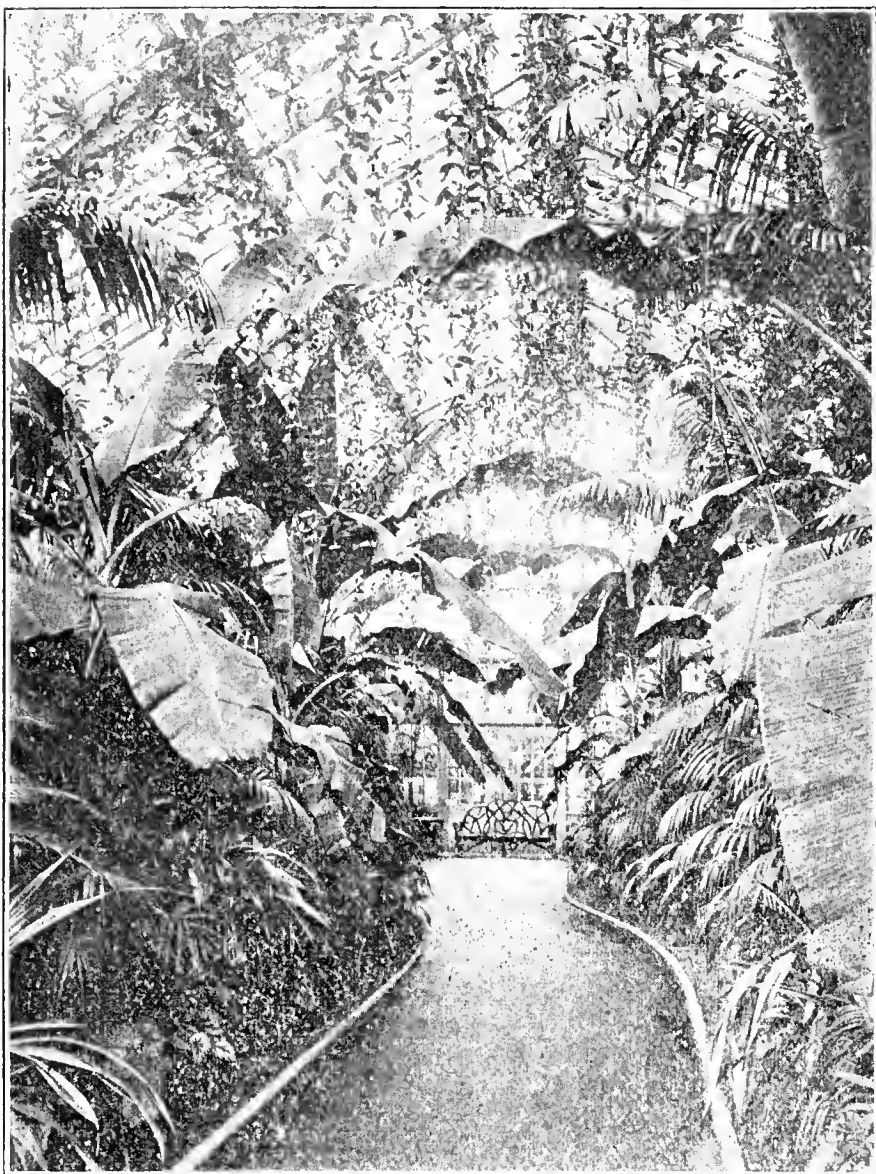


FIG. 122.—PALM HOUSE (page 556).

shown by some of our great firms. It can never be too strongly insisted upon that, however much we may owe to the French for the introduction of new Roses, they are no match for us in their culture. The same astonishment was manifested at the grand Azaleas and Pelargoniums which were then so much in vogue, but are now rarely seen; and English growers were certainly encouraged by these manifestations of foreign opinion to still more persistently show their zeal in the further development of horticulture.

The Manchester exhibitions, at which I had the honour of acting as judge for many years, had a very marked effect on the progress of horticulture in the North of England. They owed their success mainly to the energy and popularity of the late Mr. Bruce Findlay. The Society was at a very low ebb when he took it up, and with the consent of his council he established these annual exhibitions. Their influence on the cultivation of Orchids was something marvellous; nowhere, and certainly not in the Metropolis, were such plants to be seen as were shown in the heated conservatory which was especially prepared for their reception. The merchant princes vied with one another in enriching their collections, and one came constantly upon groups of them discussing the merits of the various exhibits, while some of the growers for sale stood by taking down their orders. It was the only show, too, where I have

ever seen *Nepenthes* exhibited by amateurs. The show embraced all classes of plants, and unquestionably tended to a great development of horticulture.

The exhibitions at York and Shrewsbury never seemed to me to come legitimately under the designation of flower shows; they were rather galas in which many other things participated, but I suppose they must have had some influence in the progress of horticulture. I know that exhibitions in the West of England, which were always held in the autumn, such as Taunton and Weston-super-Mare, had a very appreciable effect in this direction, and, indeed, in the days when I knew them best the flower show day was considered the great event of the year, as much so as races are in other places, and in the gardens of many around these places one could see that the lessons were not thrown away, and many an enthusiastic amateur had been encouraged to improve his garden, and to incur an expenditure which without such a stimulus he would never have attempted.

In the same way the fruit exhibitions held at Edinburgh, Hereford, and other places certainly advanced the culture of our hardy fruits, and when competitors from all parts meet together they are sure to learn lessons from one another. They learn there their own defects, and if they are wise men they use the knowledge which they have thus acquired for the improvement of their culture. Why, however, it may be asked, have some of these exhibitions languished, and some passed out of existence altogether? There may be many local and personal reasons, but probably the most potent one is that of weather, a wet day oftentimes placing the balance of accounts on the wrong side. But even where this is the case the good work done by them does not die, and one can trace their effects when societies have long past into oblivion.

SPECIAL FLORAL SOCIETIES.

During the latter part of this period of sixty years we have witnessed the formation of special societies for the encouragement of special flowers, and nothing has tended to the progress of the flowers thus encouraged more than these societies. They have been formed for the Rose, Carnation and Picotee, Dahlia, Auricula, Chrysanthemum, Tulip, and Viola. Some of those have a northern and southern division, and thus all parts of the country are considered. As an example of the effect they have on culture I may simply mention the Rose. The National Rose Society was established about twenty-one years ago. At that time Rose showing had sunk as low as was possible. There were one or two shows in the Metropolis very feebly supported, and very few in the provinces; while the growers for sale were but few in number. Since then not only have there been excellent exhibitions held at the Crystal Palace, but in many places provincial shows of the Society have been held both North and South; while encouraged by its support societies have sprung up in all directions, and wherever these hold their exhibitions a great increase in Rose growing takes place. Then, again, this has led to a large increase in the number of growers for sale, and to a great extension of their operations; so beside the historic names connected with Rose culture, we meet in all parts of the country with those who have made their mark as growers of the Queen of Flowers.

More popular is perhaps the Chrysanthemum, but what would be its popularity without the exhibitions which are held in its honour? It, too, has its National Society, which holds its tournament every year at that most dingy of all places for exhibition, the Westminster Aquarium; but those provincial societies, as well as metropolitan, which have been started for the purpose of encouraging the growth of the Chrysanthemum are far more numerous than those of the Rose. And what wonderful change has taken place in the flowers themselves. I can well remember the pilgrimage one used to make every year to the late Mr. John Salter's Versailles Nursery at Hammersmith to see the new flowers which year by year he used to introduce. They were of course then the incurved, reflexed, and Pompon varieties, and when the first Japanese varieties were shown what a howl of derision they caused. No one at all imagined their capabilities, or had any conception of the size that they would attain. I am not sure that this matter of size has not been overdone, for the size of the stands in which they have been exhibited has had to be enlarged; and while they are very remarkable as a proof of the careful culture that they have received, it may well be questioned whether much has been gained in an æsthetic point of view.

I cannot leave this part of my subject without referring to the wonderful summer exhibitions which are held every year in the Temple Gardens under the auspices of the Royal Horticultural Society, when

the most marvellous products of the gardener's skill are brought together from all parts of the country, and when those interested in them have an opportunity of meeting and discussing matters connected with horticulture.

I think, too, that one may say that the establishment of the Horticultural Club has tended towards the same end. It has now been in existence since 1875, and has greatly tended towards the cultivation of kindly feelings between all classes of horticulturists. One cannot forget that it was at one of its meetings that the proposition was brought forward which broke the icy wall that had frozen the Royal Horticultural Society, and that ultimately ended in such good results. It has been made, too, the medium of returning to the foreign horticulturist that hospitality which Englishmen are sure to receive both in France and Belgium, and very warm have been the expressions made by those whom the Club has welcomed to its gatherings.

CHARITABLE AND PROVIDENT INSTITUTIONS.

The last sixty years have also witnessed the wonderful progress made by the Royal Gardeners' Benevolent Institution, and by its younger sister the Royal Gardeners' Orphan Fund. These must both tend to the encouragement of gardeners, and so to that of the craft. I hear it sometimes said that gardeners ought to support the former more than they do, and perhaps they ought; but then it must be remembered that a gardener's situation is not a permanent one, and so he may be unable to continue the subscription, which he may be sorry to give up. The Royal Gardeners' Orphan Fund was instituted, as we all know, in honour of Her Majesty's Jubilee ten years ago, and its progress, I think, has surprised even those who watched over its cradle. I remember talking over with some of its promoters as to what form it should take, and it was strongly urged that that which many advocated should be avoided; and I am sure the Society has no cause to regret that this advice was adopted, and it is a great consolation to a gardener that should his life not be spared his children may not want a helping hand to bring them forward. There are other institutions of a most commendable kind, such as the United Horticultural Provident Institution, which have excellent objects in view; but the two first named are the principal charitable ones which appeal to the sympathies and kindly actions of all horticulturists.

ENTERPRISE IN COLLECTING PLANTS.

There are unquestionably two sources from whence the great advance in gardening has sprung, and which cannot be left out of consideration here. I mean the efforts of foreign collectors to introduce new species into our gardens, and the efforts of the hybridiser. With regard to the first of these there are two elements in it—the enterprise of those who send out these collectors, and the efforts of the men themselves, while there are others as amateurs who have gone out on their own initiative, and all combined have added materially to the enrichment of our gardens. Hardly any part of the world has escaped the plant hunter. He has gone to the tropical regions of Asia and Africa and America, he has swept over the cold regions of the North, has climbed the alpine heights of Central Europe, of the Himalayas, has brought home the treasures of that paradise of bulbs, South Africa; he has visited the Southern seas and the Australian colonies, and the gardens of all, high and low, rich and poor, have benefited by his energy and research.

Probably the richest field has been what sixty years ago was an almost unknown region—the islands of Japan. Botanists like Thunberg had visited it, and described its productions; pictures drawn by Japanese artists of their indigenous flowers had reached us. Most people considered these were exaggerations, while others thought they were such clever imitations of Nature that they must have had the flowers before them when they made the drawings. When, then, the old exclusive system of Government was broken up, and Japan no longer remained a sealed book, it was no wonder that some of our enterprising firms at home turned their attention to the far East, and sent out those who might be worthy representatives, and on whose skill, intelligence, and energy they might depend.

THE FIRST ENGLISH FLOWERED LILIUM AURATUM.

Mr. John Gould Veitch, of the great Chelsea firm, and Mr. Robert Fortune, in connection with the late Mr. John Standish, did their best to explore the country, and what riches they found to reward their labours. Well do I remember the feverish anxiety with which the opening of the Royal Horticultural Society's Gardens at Kensington in 1861 was looked forward to. Would such and such plants be in flower? and would they be fit for exhibition on the opening day? and well do I

recollect the delight with which my old friend John Standish placed upon the table a plant of *Lilium auratum*—the first that had ever been seen in flower in England—with just one bloom open, a plant which Mr. Rucker of Wandsworth carried off in great triumph, after having paid fifteen guineas for it. This was the first-fruits of a mighty harvest. Millions of bulbs we may say of this Lily have since been imported, and many of them have been obtainable at the cost of a few pence. But with all this the progress of horticulture has not conquered the difficulty of the culture of this Lily; indeed, it has almost come to be considered as an annual. The (to my mind) far more beautiful *Lilium speciosum* was introduced a few years before this, but its importation in large quantities bringing it within the reach of all must be placed at this period.

AMPELOPSIS VEITCHI.

It is not in Lilies alone that these explorers added to the treasures of our garden; there were flowering shrubs and trees of ornamental foliage, such as the Maples and Clematis, and also herbaceous plants, which have found their way in the gardens wherever attention is given to the cultivation of what will add to their ornamentation. Probably the most popular and useful plant which we owe to Mr. Veitch's energy is *Ampelopsis Veitchi*, and when I look upon my church, the south side of which covered by its growth, and which is one blaze of scarlet in autumn, I cannot but feel how great is the debt we owe to its introducer. We cannot forget the services of collectors in the enrichment of our gardens when we see what a change has been wrought by Mr. Fortune's introduction of the little Chusan Daisy, as it was called, the forerunner of our Pompon Chrysanthemum; or the "Ragged Jacks" of the Japanese Chrysanthemum, which was so sneered at at first, but which has shown such marvellous development that missionaries and military men have in no small degree added to the beauty of our gardens. Such men as Mr. Parish in Burma and Mr. Ellis in Madagascar have shown that, in addition to their own special work, they were able to help forward the introduction of beautiful and rare Orchids; while quite



FIG. 123.—ARCHED PEAR TRELLISES (page 558).

lately Mr. Henry of N. China has discovered and introduced into our gardens one of the most beautiful of Lilies, *Lilium Henri*.

AFRICAN AND AMERICAN PLANTS.

Then again what marvellous and beautiful additions have been made from what I have called that paradise of bulbous plants, South Africa, amongst which one must include that loveliest of terrestrial Orchids *Disa grandiflora*. This was known before the period to which I allude, but no one had mastered its cultivation until the late Mr. Charles Leach took it in hand and exhibited it in full bloom at the opening show of South

Kensington in 1861. I asked old Donald Beaton on the opening day, "Have you seen Standish's new Lily?" "Yes," he said; "but I have seen something much better worth looking at," and he brought me before Mr. Leach's collection of Disas. "I have long wished," he said, "to see what I felt must be a most lovely thing, and now my wish is gratified." The fact which rivetted Mr. Leach's attention was that when the plant had done flowering there appeared a shoot at the base, and instead of drying the plant off, as cultivators had previously done, he repotted it at once, and so succeeded in overcoming the difficulties which had been



FIG. 124.—MR. OWEN THOMAS (page 562).

connected with it. He did not keep this information to himself, but let all the world know how he had succeeded.

Passing away to the New World, the districts of Central America have been explored, and we should almost have said denuded, of its lovely Orchids, many of which being produced in some of the hottest regions of the world has made their importation to Europe so difficult. I remember once visiting a celebrated establishment in the Metropolis where new and rare plants were the special object of the owner, and while I was there some boxes of Orchids arrived from Central America, but the greater portion of them were a pulpy mass, yet hundreds of pounds had been expended in the venture. This is the home of those beautiful *Laelias* and *Cattleyas*, while *Odontoglossums* and *Dendrobiums* have been introduced from the same regions. In the "Orchid Hunters' Adventures" Mr. Millican shows us something of the dangers and difficulties to which collectors are exposed in order to enrich our plant houses. Many of these plants, such as *Cattleyas* and *Laelias*, grow high up on the trees, and it has been found necessary to cut down the trees in order to obtain them.

North America, too, has enriched our gardens, but the greater portion of the plants introduced from there are hardy; the rich Lilies, the terrestrial Orchids, and various other bulbs and flowering plants have been by the zeal and perseverance of our collectors added to our stores. Take for instance a very common plant, the Columbine; the old flowers that used to be the denizens of our gardens were pretty enough, but since the introduction of *Aquilegia chrysantha*, *Skinneri*, and others, what wonderful progress has been made in them, their graceful forms and infinite variety of colour making them most attractive. Nor must we forget the fine Conifers which have been introduced to us from the

same region; although I am afraid that the *Wellingtonia* and *Araucarias* will never add much to the beauty of our English landscapes.

ROCK AND ALPINE PLANTS.

One feature connected with the progress of horticulture and the improvement of our gardens has been the re-introduction and better arrangement of rock gardens. These are no longer filled with unsuitable plants, but all the mountainous districts of the world have been ransacked to fill them, and plants which we were formerly led to consider could only be seen in high mountain latitudes now flourish in all parts of the country. Take for example the *Edelweiss*. Every traveller who had anything to do with a garden vainly essayed in many instances to bring home a plant; but now, as it freely produces seed with us, plants are every year raised in considerable numbers, and although there may not be sentiment connected with it as there is with a plant gathered in the high Alps, yet we can enjoy it if we only put sentiment on one side.

The environments of plants have been studied in their native habitats, and the knowledge thus acquired has been made use of in overcoming the difficulties of culture; more especially has this been the case with regard to plants that dislike lime. We have long known that it is a hopeless thing to attempt to grow the *Rhododendrons*, *Kalmias*, and what are ordinarily called American plants, anywhere on the chalk formation, but there are lowly plants which equally refuse to grow in such districts or in such soils, and many a failure has had to be noticed which after a long while we have found out to be due to this cause; and it is impossible to ascertain this without experience, for there are some plants, of the same family even, which refuse to grow in calcareous soil, although other closely allied species are quite at home in it; thus in the lowly tribe of *Saxifragas*, while most of them will grow almost anywhere, there are some which, like *S. oppositifolia*, drag on a miserable existence in it. Many growers for sale of these plants make a point of noting in their catalogues the peculiar conditions required for their successful growth—and thus it is from the Himalayas, the mountains of Asia Minor, the Carpathians, Dolomites Appenines, Alps and Pyrenees, our rockeries have been enriched with the most lovely gems.

There are ever still some of the alpine plants which we cannot make amenable to our wishes; thus, for instance, that little gem, the *Eritrichium nanum*, which forms a carpet of the most lovely blue in some places of the Engadine, will not survive in our lower latitudes; but with all, if we recollect what rockeries used to be, and what horrors some of them were, it is refreshing to note the wondrous change and development which has taken place. No one years ago would have attempted to do what a friend of mine did after visiting the Pyrenees. He had seen the beautiful *Ramondia pyrenaica*, and with some difficulty obtained plants of it. When he came home he got blocks of the red sandstone from fifty miles away, placed them in his rock garden, bored holes in the face of them, in which he placed his plants, and grew them to a perfection that I have never seen elsewhere. How much we owe to such enthusiasts as these! how much they have tended to the progress of horticulture and how fervently it is to be hoped that they will leave others behind who will show the same zeal and love as their predecessors have done.

ACHIEVEMENTS IN HYBRIDISATION.

But if we owe much to the zealous collector and the careful cultivator of introduced plants, what is to be said about the hybridiser? This is a subject which appals one by its magnitude, for there is not a department of horticulture which has been left untouched by him. Time was when it was considered that there were certain classes of plants to be kept sacred from his innovations, and botanists in many instances scoffed at him; but he very soon turned the tables on them when he began to interfere in what had been considered the sacred territory of the Orchid. In some of the classes of this flower, however, he has been most successful, and now no department seems to be free from his audacious attempts. And here let us remember that some of our foreign horticulturists quite equal, if they do not excel, us. For a long time many of the French growers especially have been noted for their success as hybridisers, amongst whom I think the palm must be given to M. Lemoine of Nancy, who in so many classes of garden flowers has given us such happy results. They have set us an example which many of our home growers have not been slow to follow.

Take, for example, the Rose. At one time they had almost the field to themselves, and even now they almost hold it with regard to the Tea Rose; but the late Mr. Henry Bennett, when he took the matter up,

soon ran rapidly ahead. I do not believe that the older varieties of French Roses are the result of artificial hybridising, but the produce of seed which has been promiscuously gathered from flowers which had probably been fertilised by insect agency, and of later years they have given us but few flowers, except in the Tea class, which are of value. Mr. Bennett, however, introduced the system of systematic cross fertilisation, which, before his time, had been but partially exercised by some of our home growers. He made some mistakes, as was inevitable; but he has given us some grand flowers, of which Her Majesty and Mrs. John Laing stand out pre-eminent. Messrs. Alexander Dickson & Sons of Newtownards followed his example, and to them we are indebted for some beautiful flowers. In this connection, too, the labours of William and George Paul should not be forgotten.

Then, again, look at Begonias. I recollect many years ago an eminent grower saying to me, "What flowers shall we attempt to improve next?" and when I hesitated as to a reply he said, "I shall try the Begonia," and how well the speaker, Mr. John Laing, has succeeded we very well know. He and Mr. Henry Cannell run neck and neck, and now they and others have brought the flower to such a pitch that amateurs are beginning to say, "Too big." Thus it now hardly ever occurs to anyone to grow the named varieties; but, as in the case of the Cineraria, Calceolaria, Gloxinia, Primula, and other flowers they are contented to sow the seed each year. Not less noticeable is the quick and almost wonderful advance that has been made in the brilliant Hippeastrums and the chastely pencilled Streptocarpus, as was recently exhibited by Messrs. Veitch at the Temple Show.

Take, again, the Gladiolus. Many years ago we were satisfied with a spike of four or five flowers expanded at the same time, but thanks to the energy and intelligence of Mons. Souchet in France, and of Messrs. Kelway and Burrell at home, we have flowers which have sometimes from eighteen to twenty expanded blooms open at the same time, and these blooms three times the size of those we used to grow. I have only used these as samples of the progress which has been made, but the same results have attended the exertions of hybridisers in other directions. Thus the pretty and fragrant Sweet Pea has fallen under the magic wand of Mr. Eckford, and colours hitherto undreamt of have appeared amongst them. Then, again, the Narcissus; one cannot tell how many of the varieties now in cultivation are the results of cross fertilisation, but one does know that both abroad and at home such men as De Graaf and Engleheart have been busily at work, and have obtained some remarkable results. Look also at what has been accomplished with Cyclamen persicum, contrasting the species as figured in 1837 with one of Messrs. Sutton & Sons' giants in 1897 (fig. 128, page 578). This may be taken as typical of the advance in other plants, and it would be difficult to name any flower which has not more or less been improved during the last sixty years.

Then as plants of more stately habit we have the magnificent Clematises—veritable triumphs of the hybridiser's art, and well is remembered the admiration incited by the now familiar C. Jackmanni when it first came upon the scene about thirty-five years ago, while other beauties have been constantly following in its train. Nor is it easy to forget the effect produced when Mr. C. F. Bause raised the first seedling Coleuses at Chiswick—varieties which no one had anticipated; while later, he may be said to have revolutionised the Dracenas, and brought forth a new and brilliant contingent of beautiful foliaged plants for our stoves and homes.

Fruits have also, both here and in America, been brought under the power of the hybridiser. At home Mr. Rivers of Sawbridgeworth has been for many years engaged in the improvement of some of our most esteemed fruits; and there is no doubt that great results have been achieved, both in the earlier ripening of some of them and their more

prolific character. In Nectarines and Peaches and Plums especially, valuable additions have been obtained. From America we have also received excellent varieties, both as regards quality and free bearing. It is natural to expect that a fruit so luscious and generally valued as the Grape should have tempted the hybridiser, and yet we cannot say that striking progress has been made. Many varieties have been brought forward, and may have obtained notoriety for a time, but it has been only temporary, and in course of time the older sorts have re-asserted themselves; yet such as the Duke of Buccleuch, Madresfield Court, and Mrs. Pince seem to have become established.

WORTHIES OF THE PAST.

Having rapidly glanced at the progress of horticulture during the last sixty years, I come to ask, Who are the men to whom we are most indebted for this remarkable development? I think it will be better in treating of this portion of my subject to avoid all reference to those living amongst us. Either from want of memory or want of knowing I might perhaps omit some who might consider that they were entitled to be included. I know that some of the names that I may bring forward convey no meaning to the present generation, for it is true here, as in other cases, that men are soon forgotten. As the wave which comes thundering upon the beach recedes and another takes its place, so it is with us; we may have thought we fill an important place, but those who succeed us are probably ignorant of our very existence. It is so in all stations of life. Go to a place where you lived forty or fifty years ago, and where you were tolerably well before the public, and you will be humiliated to find how you are entirely forgotten; and this must be my excuse if some of the names which I mention may lead my readers to ask, "Who is he?"

ROBERT MARNOCK AND JOHN GIBSON.

The task is a somewhat difficult one because of the many branches connected with horticulture in which men have been conspicuous, and have helped forward its development in one or other of its branches. Take, for example, the matter of landscape gardening. How much we are indebted to that kindly and intelligent man, Robert Marnock! and yet how few there are who, when they go through the Botanic Gardens in Regent's Park, ever think of asking who laid those gardens out!

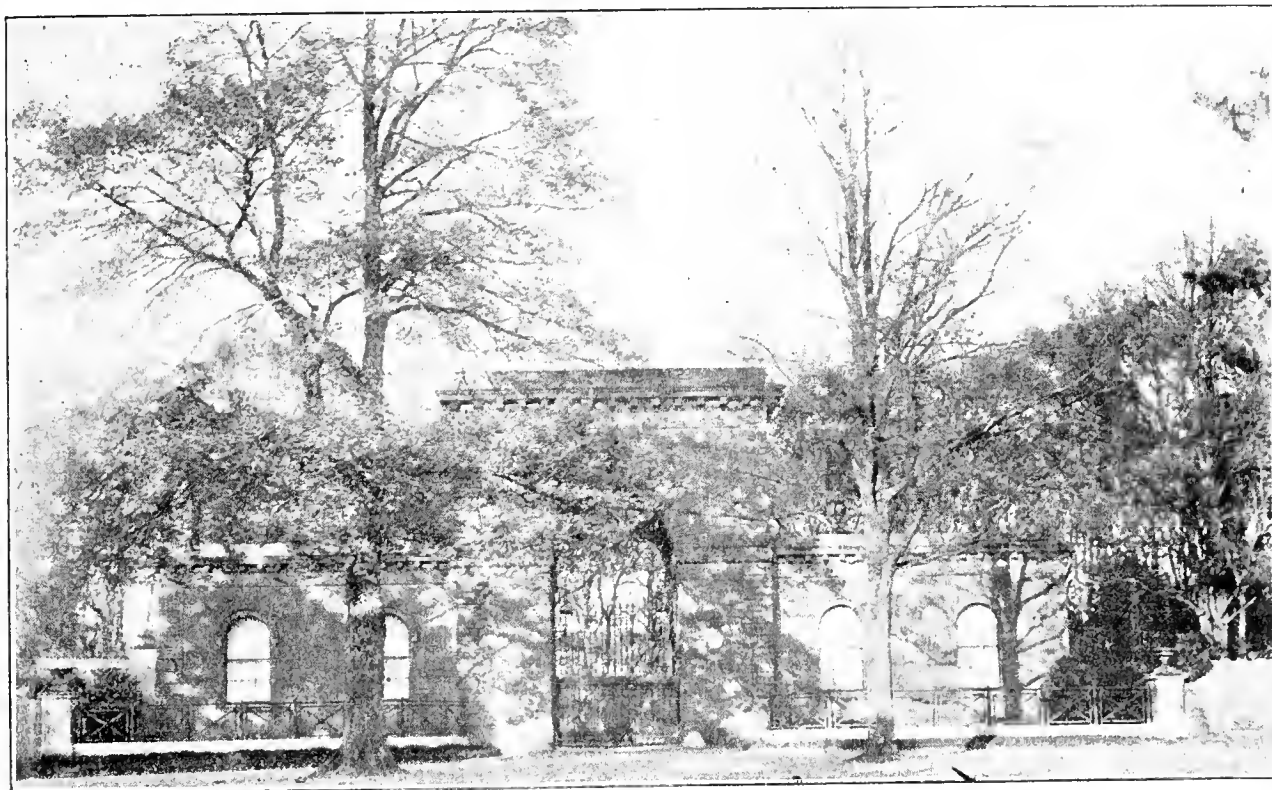


FIG. 125.—ENTRANCE TO OSBORNE HOUSE (page 564).

Then, again, when what is called the subtropical garden came into vogue, how much did John Gibson of Battersea Park show what could be done in this direction! We were happily delivered from the system of which Mr. Nesfield was the originator, and Mr. Marnock has left those behind him who are working on the same line as their master.

JAMES VEITCH.

I had more than once the pleasure of meeting one whose open-handedness and enterprise led to the building of what we may, I think, consider the foremost horticultural establishment in the kingdom—Mr.

James Veitch of Chelsea, who has left his mark not only on the establishment which bears his name, but on horticulture generally. He was a stalwart friend of the Horticultural Society, and in many of its trying experiences gave it the benefit of his sound advice and generosity.

DR LINDLEY.

I never saw much of one whose name is frequently mentioned, as it well deserves to be, although he was more of a botanist than a horticulturist—I mean Dr. Lindley. Indeed, there were some forms of horticulture that he could hardly avoid treating with contempt. He

see his name attached to a plant, can tell you who Robert Fortune was. His laborious travels told upon his health, and he passed away at a comparatively early age.

JOHN STANDISH AND ANTHONY WATERER.

From those apparently unpromising districts of Surrey where it would be difficult to grow anything in the shape of cereals, two names come before me now of men who in one department helped forward that branch of horticulture in which they were interested—namely, John Standish and Anthony Waterer. The former had grand ideas, which he was never able to realise, but first at Bagshot and afterwards at Ascot his energy enabled him to achieve much. If he had had the wealth of Monte Christo or the Treasure Island he would have found means for employing it in his favourite pursuit. I remember once how full he was of a plan of a Strawberry express from Ascot to London, and how he was to outdo the railway and every other method of conveyance by its means. He was strong on the matter of hybridising, and was the means of introducing many good things; but more especially does horticulture owe him much through his employment of Mr. Robert Fortune in Japan and China, and for the many fine things introduced by him.

Mr. Anthony Waterer, who has but lately passed away from amongst us, did more, I think, to encourage the growth of Rhododendrons and what are ordinarily called American plants than anyone that I can recollect. He was not satisfied with making his display at Knap Hill, and drawing thither all lovers of these beautiful shrubs, but every spring large bushes of them

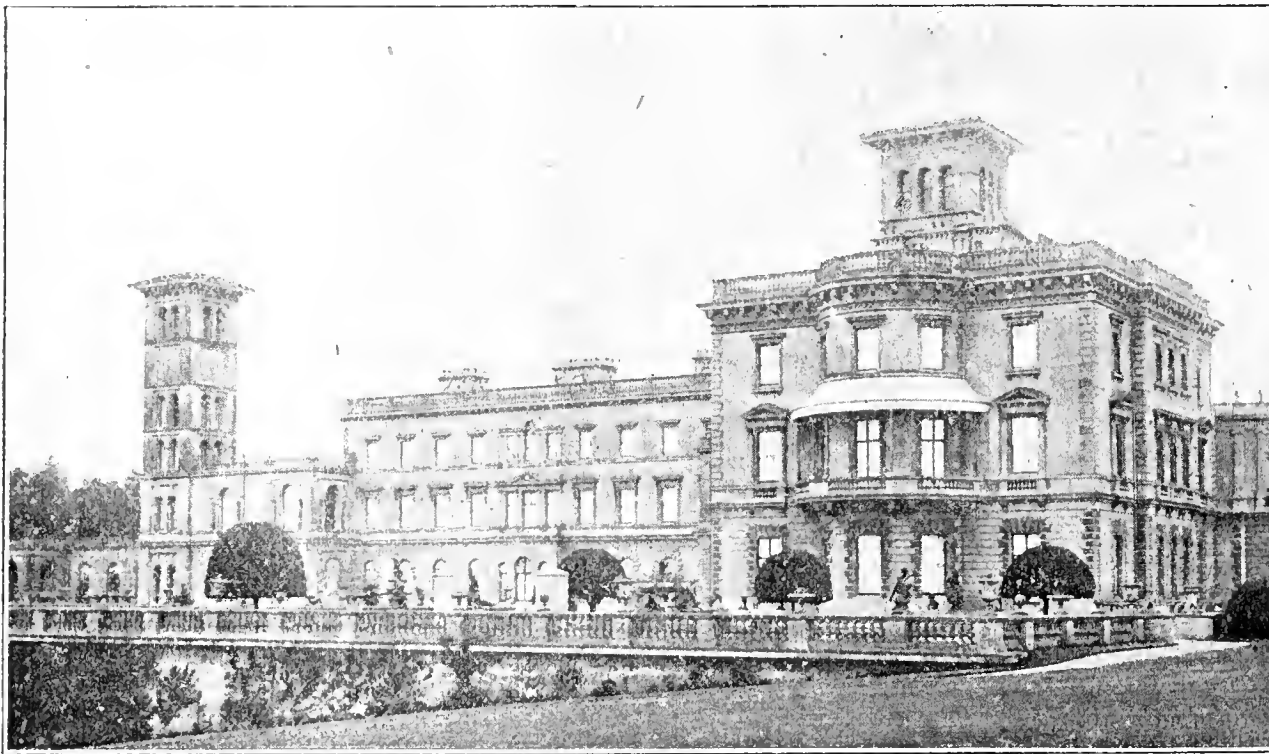


FIG. 126.—OSBORNE HOUSE (page 564).

was a masterful man, and, like most men of that stamp, very much liked to have his own way. He did not care about the florists, he used to scoff at what he considered their obtrusive operation with flowers, but though he used to come down sledge hammer-like, one could see that his heart was in what he undertook; and when the offensive and personal character of Glenny's "Gardeners' Gazette" roused the ire of horticulturists, his bold and scientific treatment, as the first Editor of the "Gardener's Chronicle," made its mark upon the gardening literature, and raised its tone. His name is connected with the admirable library which he had gathered together, and which is now housed in the Council room of the Society which he loved so well.

DR. HOGG.

But there is another doctor who has been endeared to many about whose recent departure from amongst us so much has been said, and of whom, after six-and-thirty years' intercourse with him, I could say much more; but I must leave all personal considerations on one side and speak of him in this connection as a public man, for such had Dr. Hogg been for a great many years, and his influence on the progress of horticulture has been of a very marked character. He was keenly alive to its interests in all departments, though of course it was in Pomology that he was such a tower of strength, and his *magnum opus*, "The Fruit Manual," is his best monument. With what scrupulous care and impartiality he threw together his information on this difficult subject has been recognised both at home and abroad. He was ever ready to lay his stores of knowledge before any who sought his opinions, and they were always treated with such courtesy and geniality that if they were enthusiasts before he made them doubly so, and many an one has dated a fresh departure in their horticultural life from intercourse with him.

ROBERT FORTUNE.

I several times met that most earnest and indefatigable collector, Robert Fortune. He was a pleasant and agreeable man, and clear and lucid writer; it would be impossible to say what department had not been enriched by his labours. He had a grand field, at that time almost unknown to Europeans, and he collected a great number of excellent things—Conifers, shrubs, Lilies and herbaceous plants—which were either brought or sent home by him; but there are few who, when they

were taken up, and a display made at the Botanic Gardens or some one of the London squares. I have seen them in grand order at the great Whitsuntide shows at Manchester, and many both in Lancashire and Cheshire have been thereby encouraged to grow them. Mr. Waterer was what is ordinarily called a rough diamond, but under that somewhat rugged manner those who knew him could trace a kindly heart and an anxious desire to help forward all those who were interested in the department he especially affected. The soil of Surrey is peculiarly adapted to the culture of his favourite plants, but the climate is not equally so. They are subject to spring frosts, and to see them in perfection one has to go to South Wales, and see in the gardens of Lord Swansea and Sir John Llewelyn, or to the South-West of Scotland at Lord Stairs, at Inch Castle, not only what the hybrids raised at Bagshot could do, but also to see the Sikkim Rhododendrons almost as forest trees.

THE REV. M. J. BERKELEY.

The Rev. M. J. Berkeley has so recently passed away that a good many must well recollect the genial and happy features that marked the first fungologist of our times, and who rendered valuable services to horticulture amongst those various diseases which as "Old Smellfungus" (as he was pleasantly called among those who knew him, a name which he never resented) he was continually searching out and telling people how to combat.

SHIRLEY HIBBERD.

There are few men who have been more missed, not only in the metropolis but in various parts of the country, or one who laboured harder in promoting horticulture, than the late kind, genial, and witty Shirley Hibberd. Most of us can recall many a pleasant hour spent with him, when one was always sure to learn something. He was an enthusiast with a keen eye to all that was beautiful in Nature, and both by his writings, which were numerous, and by his practical experience stimulated many who might otherwise have been inclined to lag in whatever branch they had taken up. Whatever was the subject in which he was interested he carried it out thoroughly. Some I know would say too far, but it is surely better to err on that side than on that of indifference.

THOMAS RIVERS.

All who have engaged in either the culture of Roses or that of fruit will, I think, be ready to acknowledge the debt of gratitude they owe to

that grand old gardener Thomas Rivers, who at a time when comparatively little had been written on either subject, laid us under an obligation to him for his "Rose Amateur's Guide" and "Miniature Fruit Garden." Under him, too, Sawbridgeworth became classic ground. Visitors came to it from all parts of the world to see the experiments that were continually being carried out there, especially in fruit growing, and none ever left it without being impressed with the mass of intelligence, shrewdness, and good feeling of the proprietor. It may be that some of his theories have not held their ground, but few will deny that he greatly helped forward the progress of fruit culture. From his journeys to France and Belgium he brought home much solid experience and knowledge, and the various systems of training adopted abroad owe to him, perhaps more than anyone else, their popularity in this country. In Rose culture he was eclipsed perhaps by others, but in fruit culture by none.

JOHN PEARSON.

There was one other fruit grower whom we may perhaps place next to him for the services rendered to that important branch of gardening—Mr. J. R. Pearson of Chilwell, Notts. I can bring to memory a very pleasant and profitable day spent there many years ago, and although I was not a fruit grower, I experienced as much courtesy and kindness as if I had come there with an order for 1000 fruit trees. At that time he was especially taken up with Grape culture and the production of new varieties, but in all departments a high state of proficiency was preserved, and it is pleasant to note that both at Sawbridgeworth and Chilwell the old traditions are faithfully observed and carried out.

CHARLES TURNER

It could not have been much less than fifty years ago since I paid a visit to the late Mr. Charles Turner, who was then residing at Chalvey, near Slough, then with a small garden and a few frames, but who some years afterwards migrated to the Royal Nurseries, Slough, and I think to him more than to anyone else must be ascribed the merit of keeping alive the love for florist flowers in the neighbourhood of the metropolis. Tulips, Auriculas, Pinks, Dahlias, Carnations, Picotees, and Roses were grown with such success at Slough, that many were encouraged in their culture. He had at one time a grand collection of Tulips, but nothing seemed able to induce people to grow them in the South, and I remember Mr. Turner when he gave them up saying it would pay him better to grow Lettuces. Here, again, one is thankful to be able to say the fame and reputation of the establishment are well maintained.

JOHN KEYNES.

I wonder how many recollect old John Keynes of Salisbury, and yet few men did more to advance the culture of the Dahlia. He and Charles Turner used to run a neck-and-neck race both in exhibitions and production of new varieties; not that his attention was confined to these, but they formed the groundwork of the establishment which he built up. He did not commence life as a gardener, and it was his love for flowers that led him to change his vocation. He first began as a Pink grower, and was fond of telling a story of those early days, and how, when driving off to a show some miles distant from Salisbury, the trap he was in came to grief, and he and another Pink grower who was going with him were thrown out. "I escaped," he used to say, "without injury, but my friend's leg was broken." Such, however, was his enthusiasm, that he obtained another trap, and in spite of the broken leg they drove off to the place of exhibition, but (then he used to add with a quiet twinkle of his eye) "the leg was a wooden one."

SIR JOSEPH PAXTON.

Amongst those names which should ever stand forth as connected with horticulture in the Victorian era is that of Sir Joseph Paxton, though it will probably be mainly in the grand exhibition buildings of 1851 and with the Crystal Palace, its immediate successor, that his name will be mostly remembered. The accomplished gardener of Chatsworth,

whose genius elaborated the design of the grand building in Hyde Park, had a great influence on horticulture. The world saw that there were some gardeners that did not only wield the spade and the hoe, but also the pen and the pencil, and so was inclined to estimate at a higher figure those who led the van in the various departments of gardening. The profession felt honoured by the distinctions conferred on its most illustrious member, and were no longer inclined to use the expression, *Only a gardener*; and there can be little doubt that the establishment at the Crystal Palace has led to the great encouragement of high-class gardening.

WILLIAM THOMSON.

The names of two brothers—one of whom still remains with us—namely, David and William Thomson, both deserve notice; but following the rule I have laid down I say nothing of the former. Probably there is no person who gave a greater stimulus to Grape-growing for profit than the latter. At Galashiels he led the van in this branch of gardening, and I think it is not too much to say that the vast establishments which we now see in the neighbourhood of London owe their development to the example set there, and I believe that this is recognised by many of the owners of these places, some of whom, at least, hail from the other side of the Tweed.

THOMAS MOORE.

So years ago there was no more familiar name in the gardening world than that of Thomas Moore, the curator of the Apothecary's Garden at Chelsea. He was a very glutton for work, and as is usual in such cases, people never hesitated about laying it upon his shoulders. He was a prolific writer, and as his knowledge was extensive, he helped forward many in the pursuit they loved, and wherever a committee was to be formed or society started, and the question came, Whom shall we ask to be secretary? the invariable reply was, Thomas Moore. At one time associated with Dr. Lindley in the "Gardener's Chronicle," and known to a wide circle, and he continued his activity until the disease which finally carried him off, made such inroads upon his health that work was impossible.

JOHN DOMINY.

I have mentioned the hybridisation of Orchids, and I think that it ought not to be forgotten that the leader in this work to whose intelligence and skill we owe so much, was John Dominy, an employé in the great Chelsea firm of Veitch & Sons. A quiet, modest, and unassuming man, he was never willing to put himself forward, one who would do anything rather than say a few words. He not only ventured

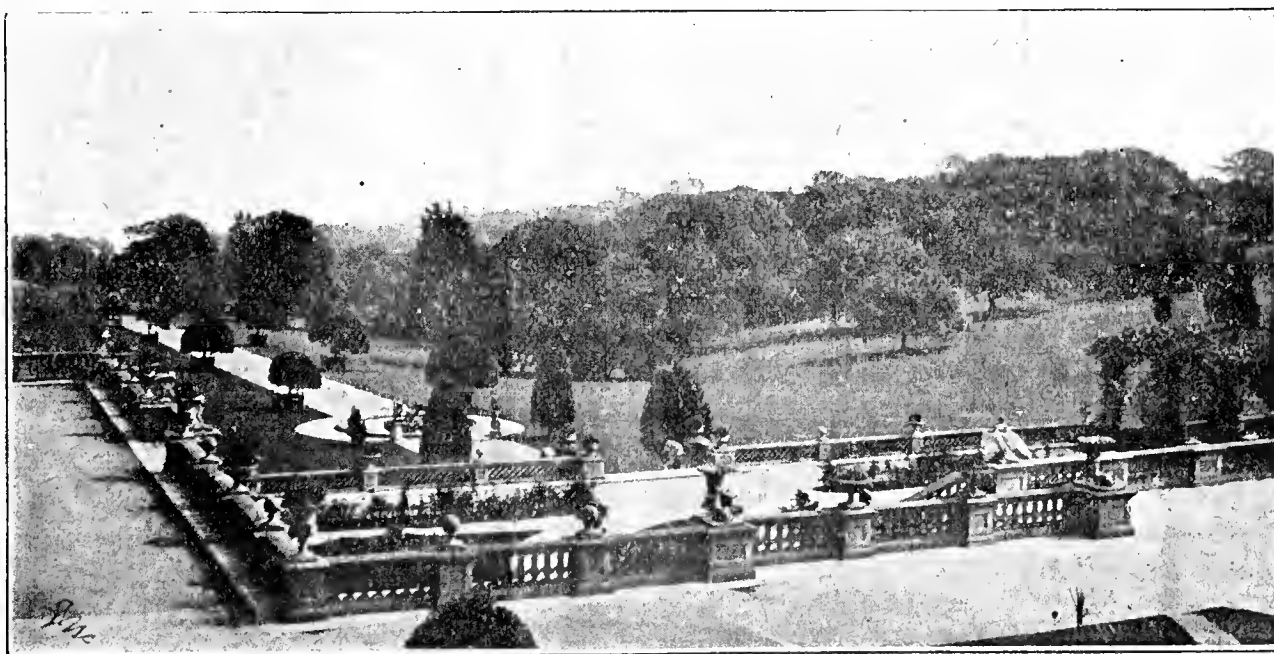


FIG. 127.—OSBORNE HOUSE TERRACE (page 564).

on ground hitherto untrodden, but led the way in which many others have since followed, and he showed conclusively how flowers of a complicated structure are not beyond the reach of the hybridiser. By his success he encouraged others to persevere in the same line, and whenever I see a hybrid Orchid, the quiet and modest bearing of John Dominy are present with me.

B. S. WILLIAMS.

While I am mentioning Orchids one must not forget the late Mr. B. S. Williams of Holloway. Greatly devoted to this class of plants, he did what he could to popularise them in various parts of the country.

The frequenters of the great Whitsuntide show at Manchester will not readily forget his portly form and beaming countenance in that great assembly, and much of the progress of Orchid growing in that neighbourhood is due to him. Every year he used to bring down collections of the newest and best kinds, and growers had thus the opportunity of seeing their value close at home.

BRUCE FINDLAY.

As I have frequently mentioned this exhibition, I think it would be ungracious not to say something of Mr. Bruce Findlay, to whom, as I have said, its success was mainly due. He was a first-rate organiser, cool and calm in all that he did. The eccentricities of exhibitors, their fussiness, and often their unreasonable complaints, never disturbed his equanimity. I have seen people come up to him swelling with indignation, but a few words from him would set the matter right, and they went away convinced that no fault lay with the manager of the

gardening was most picturesque, and Mr. Ingram made the most of its capabilities, and when anyone contemplated carrying out spring bedding they always wanted to know what Ingram had done at Belvoir. It is almost impossible to speak too highly of the man himself; he was in truth one of Nature's gentlemen, and worthy to be placed alongside the most distinguished names in horticulture.

OTHER GOOD MEN.

There are two or three names of other good men who as hybridisers have advanced the cause of horticulture. While Mr. Pearson of Chilwell was adding to our lists of Zonal Pelargoniums there was a quiet man in London who was doing the same, the late Dr. Denny. So also was Mr. Ingram, for a long time her Majesty's gardener at Frogmore; he raised some varieties which are still in use, and to him we owe also some fine varieties of Strawberries. Nor, again, must we forget Mr. Gilbert of Burleigh, a raiser of several vegetables which are still in cultivation.



FIG. 128.—CYCLAMEN PERSICUM—1837.



CYCLAMEN PERSICUM SUTTON'S GIANT—1897 (page 575).

exhibition. The esteem in which he was held was evidenced by the deep sorrow felt at his death, and also by the testimonials given to him.

REV. JOSHUA DIX.

Visitors to the Council room of the Royal Horticultural Society may have noticed amongst the few portraits that of a quiet, placid looking clergyman, of whom a great many of the present generation have never heard, and yet his influence on horticulture was no slight one. In the early days of the ill-fated South Kensington, the Rev. Joshua Dix took an active part in promoting its welfare, and his quiet and unobtrusive manner ever gained him the attention of those he wished to influence, yet, as I have said, few remember even his name.

WILLIAM INGRAM.

In the days when spring bedding was much more in vogue than it is at present no one tended more to its development than William Ingram of Belvoir. That princely home of the Dukes of Rutland afforded ample scope for the display of his genius, and amongst especial treats which many a horticulturist enjoyed was a visit to this grand residence. Its magnificent trees and grassy slopes and commanding position made it a special spot for a pilgrimage. The place selected for the spring

REFLECTIONS.

I have thus endeavoured, I know but very imperfectly, to set down some facts tending to show that horticulture has shared in the wonderful progress which the sixty years of Her Majesty's reign have borne witness to. I have shown where the advance has been, the causes which have led to it, and the men by whom it has been carried out. Unhappily, the terrible depression from which agriculture has suffered has had its bearing upon the kindred profession of horticulture; but just as the Chancellor of the Exchequer has shown that neither the competition of foreign nations nor the blindness of our own people has hindered the development of the resources of the empire, so the same circumstances have not hindered the advancement of horticulture. What this progress might have been but for the disturbing elements to which I have alluded it is impossible for me to say; and as I look back upon my long apprenticeship to this science I must record the pleasure and happiness it has given me, and how many true and kind friends it has made for me; and as I think upon the younger men who are now engaged in it I can only hope that, bringing to it a loving feeling, they may be able also at the end of sixty years to record the same feelings of thankfulness that I am now able to do.—D., Deal.

